DOCUMENT RESUME

ED 143 178 EC 101 859

AUTHOR	Anderson, Daniel R.; And Others
TITLE	Behavior Modification Techniques for Teachers of the Developmentally Young. Experimental Version.
INSTITUTION	Salt Lake County Community Mental Health Center, Salt Lake City, Utah.; University of Northern Colorado, Greeley.
SPONS AGENCY	Bureau of Education for the Handicapped (DHEW/OE), Washington, D.C.
PUB DATE	72
NOTE	234p.; PADRE Project
EDRS PRICE	MF-$0.83 HC-$12.71 Plus Postage.
DESCRIPTORS	*Behavior Change; *Contingency Management; *Daily Living Skills; *Handicapped Children; *Operant Conditioning; Program Descriptions; Reading Readiness; *Self Care Skills; Task Analysis; Teaching Methods; Textbooks

ABSTRACT

The text is designed for a course in the application of behavior modification techniques with handicapped children. The first part considers eight elements of the behavioral approach, including describing behavior precisely, recording behavior, arranging consequences, and teaching new behaviors. The second section, a practicum outline, provides hypothetical situations to allow the reader to implement behavior modification techniques. The final section contains information on teaching procedure, consequences, and evaluation methods for 24 programs covering such tasks as putting on socks, eating with a spoon, establishing and maintaining eye contact, improving oral reading rate and comprehension, and teaching sight vocabulary. (CL)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED143178

BEHAVIOR MODIFICATION TECHNIQUES FOR TEACHERS OF THE DEVELOPMENTALLY YOUNG

EXPERIMENTAL VERSION

U S DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

Developed by

Daniel R. Anderson Gary D. Hodson

Willard G. Jones Joseph C. Todd

Barbara G. Walters

ROCKY MOUNTAIN SPECIAL EDUCATION INSTRUCTIONAL MATERIALS CENTER
University of Northern Colorado
Greeley, Colorado

and

Gayle F. Gregersen

CHILDREN'S BEHAVIOR THERAPY UNIT
Salt Lake County Community Mental Health Center
Salt Lake City, Utah

1972

The materials presented herein were developed pursuant to a grant from the Bureau of Education for the Handicapped, United States Office of Education, Department of Health, Education, and Welfare. The opinions expressed herein do not necessarily reflect the position of policy of the United States Office of Education and no official endorsement by the United States Office of Education should be inferred.

EC101859

ACKNOWLEDGEMENTS

Far too many people have contributed to the development of these materials to acknowledge individually here.

To the extent that the materials achieve their stated objectives, the credit must be shared with them. To the extent that they fail to do so, the fault is that of the authors.

Special thanks are due to Joan W. Wilkinson, who adroitly managed the several drafts of the text; and to Roger L. Dudley, who went that extra mile toward resolving the technical difficulties associated with the video tape components of the course materials.

It (Behavior Modification) is not so much a skill as a personal characteristic--an attitude. And that attitude is one of optimism. If you believe the principles of the behavioral approach, then an optimistic approach is the only one with which you can function. You believe that this child can learn and that you can arrange the environment to help him learn. You cannot indulge yourself in the luxury of saying, "He's too stupid", or "He must be brain damaged".

You naturally embrace an attitude of let's try doing something else kind of thing.

--Sidney W. Bijou

TABLE OF CONTENTS

	PAGE
PART ONE: BEHAVIOR MODIFICATION TECHNIQUES	1
UNIT ONE: THE BEHAVIORAL MODEL	2
UNIT TWO: DESCRIBING BEHAVIOR PRECISELY	13
UNIT THREE: RECORDING BEHAVIOR	39
UNIT FOUR: GRAPHING BEHAVIOR	54
UNIT FIVE: ARRANGING CONSEQUENCES	67
UNIT SIX: TEACHING NEW BEHAVIORS	81
UNIT SEVEN: CLASSROOM MANAGEMENT TECHNIQUES: I	100
UNIT EIGHT: CLASSROOM MANAGEMENT TECHNIQUES: II	118
PART TWO: PRACTICUM OUTLINE	138
STEP ONE: PINPOINTING THE BEHAVIOR	139
STEP TWO: RECORDING AND GRAPHING THE BEHAVIOR	140
STEP THREE: ESTABLISHING CONSEQUENCES AND PROCEDURES	141
STEP FOUR: ARRANGING CONSEQUENCES: I	142
STEP FIVE: ARRANGING CONSEQUENCES: II	143
STEP SIX: SUMMARY	144
PART THREE: PROGRAMS	145
PUTTING ON SOCKS	148
PUTTING ON SHOES	148
PUTTING ON T-SHIRT	149
PUTTING ON PANTS	149
BUTTONING CLOTHES	150
EATING WITH A SPOON	151
WALKING	153
NUMBERS PROGRAM	155
BRUSHING TEETH	159

TABLE OF CONTENTS (Continued)

PAGE

PART THREE: PROGRAMS (Continued)

RIDING A TRICYCLE..... 162

IMPROVING WALKING POSTURE..... 164

TEACHING POSITIVE RESPONSES TO DIRECTIONS AND COMMANDS..... 166

SWEEPING THE FLOOR..... 168

APPROPRIATE SITTING BEHAVIOR..... 170

ESTABLISHING AND MAINTAINING EYE-TO-EYE CONTACT..... 171

APPROPRIATE SITTING BEHAVIOR WHILE MANIPULATING OBJECTS..... 172

DECREASING TARDINESS..... 173

IMPROVING FINE MOTOR COORDINATION PREPARATORY TO WRITING LETTERS AND WORDS..... 174

IMPROVING ORAL READING RATE AND COMPREHENSION..... 176

INCREASING PRODUCTIVITY AND ACCURACY IN ACADEMIC BEHAVIORS..... 178

PROCEDURES FOR TEACHING A SIGHT VOCABULARY TO THE DEVELOPMENTALLY YOUNG: INTRODUCTION..... 179

TEACHING A SIGHT VOCABULARY IN AN INDIVIDUAL SITUATION..... 180

TEACHING A SIGHT VOCABULARY IN A GROUP SITUATION..... 185

TEACHING STUDENTS TO TEACH EACH OTHER..... 190

TEACHING PARENTS TO TEACH THEIR CHILDREN..... 202

PART ONE: BEHAVIOR MODIFICATION TECHNIQUES

The purpose of this course is to introduce you to the major concepts and techniques underlying the application of Behavior Modification techniques to the behavioral problems of the developmentally young student. The term developmentally young refers to any student whose behavior, academic, social, etc., does not correspond to the behavior expected for his chronological age.

The first part of the course consists of eight basic units. Each unit is relatively brief (an average of 17 pages) and each is designed to present as concisely as possible, with a minimum of technical language, sufficient information to enable you to correctly apply Behavior Modification techniques to either the individual or classroom situation.

The instructor will indicate the time schedule by which the units are to be completed. At the completion of each unit, a test will be given to determine the extent to which you have mastered the material in the unit.

An outline of the content of each unit is included on the first page of each unit under the heading UNIT CONTENT.

An outline of the topics which will be covered in the test for the unit is included on the same page under the heading PROFICIENCY ASSESSMENT.

A review of the materials covered in each unit is provided at the end of each unit under the heading, UNIT REVIEW.

References and, if appropriate, additional comments regarding the materials presented in the unit are included in the REFERENCES AND NOTES section at the end of each unit.

UNIT ONE: THE BEHAVIORAL MODEL

UNIT CONTENT

The purpose of the materials in this unit is to introduce you to the Behavioral Model and its application to the correction of the behavioral problems of the handicapped student.

Two components of behavior and two general types of behavior are discussed.

The Behavioral Model is compared with the more commonly used Medical Model. No attempt is made to exhaustively describe and compare the Behavioral Model with the Medical Model. To have attempted to do so in so brief a space would have resulted in little more than a superficial comparison of the two models.

Three problems resulting from the practice of labeling are described and research concerned with students who have behaved in exception to their labels is discussed.

PROFICIENCY ASSESSMENT

Successful completion of this unit will require you to:

A. Correctly provide written definitions of:

1. Behavior	2
2. Public Behavior	2
3. Private Behavior	2
4. The Medical Model	4
5. The Behavioral Model	4

B. Correctly describe three (3) problems resulting from the use of labels. 6

Total Points 20

1.1 PUBLIC BEHAVIOR

Throughout this course we will be concerned with the study of observable behavior. For the purpose of this course we will define behavior as consisting of two components, the behavior itself and the consequences of the behavior.

Observable behavior is behavior which can be seen and described by most people with a high degree of agreement. Similarly, the consequence of the behavior must be capable of being observed and described with the same high degree of agreement. Behavior of this type is popularly referred to as Public Behavior, in the sense that the behavior and its consequences can be readily seen and described by the observer.

Consider the following fictitious description of behavior, written about Chuck, an institutionalized youngster, who deliberately hit his head on a radiator, causing the attendant to rush to him and hold him in her arms.

> Chuck has just punished himself. He experiences severe pain when he does so. He does this because he feels guilty as a result of a deep seated hostility he holds towards his parents. Punishing himself reduces his feelings of guilt.

In this description, the behavior Chuck engaged in was described as "self-punishment". Two consequences of engaging in this behavior are suggested:

A. The severe pain Chuck experiences.

B. The reduction in his guilt feelings obtained by engaging in self-punishment.

Is this description of Chuck's behavior as precise as it could be? Will the majority of people who read or hear this description clearly

understand the behavior that Chuck has just engaged in and the consequence which occurred when he engaged in that behavior? Let's look at the description in more detail.

The above description says that the behavior Chuck engaged in was "self-punishment". What does self-punishment mean? To one person it might mean head-banging, to another it might mean refusing oneself an extra helping of a favorite dessert. The point being made is that the description of the behavior provided, "self-punishment", is liable to several interpretations, possibly as many different interpretations as there are people who are asked to interpret it. Accordingly, it is not a description of behavior which is likely to be understood with a high degree of agreement.

Similarly, the description of the consequences which occurred immediately after he banged his head is vague. While it is no doubt true that Chuck felt pain when he banged his head, who knows precisely what "severe pain" means? One person may describe his visit to the dentist's office as having been "severely painful", while another may describe the loss of a pet as having been "severely painful". Clearly, two different types of pain were experienced in these situations.

The second consequence described referred to a "reduction of guilt feelings". While we all have probably had what we describe as guilt feelings about one thing or another, it is extremely doubtful that we could agree on what a guilt feeling is exactly, much less how we could determine with a satisfactory degree of agreement what evidence constitutes a "reduction in guilt feelings".

1.2 PRIVATE BEHAVIOR

Both the behavior and the consequences in the description above refer to an internal or private aspect of Chuck's behavior. We cannot know the

degree of pain that Chuck felt nor can we know if his guilt feelings were reduced by banging his head or, for that matter, if he even actually had any guilt feelings in the first place. Because we can neither observe nor precisely describe these types of behaviors, they are referred to as examples of Private Behavior.

The private aspects of human behavior: feelings, needs, attitudes, etc. are not included in the behaviors that we will study in this course. This is so not because we consider the private aspects of behavior unimportant, but simply because these types of behaviors and their consequences are not liable to direct observation and precise description.

A more suitable description of Chuck's behavior might look like this:

> Chuck hit his head once on the radiator. After he did so, the attendant approached him and held him in her arms.

Notice that in this description both the behavior--"Chuck hit his head once on the radiator" and the consequence--"after he did so, the attendant approached him and held him in her arms" are described as precisely as possible. A majority of persons reading this description of Chuck's behavior will understand precisely what behavior Chuck had just engaged in and what the observable consequence of his engaging in the behavior was.

1.3 THE MEDICAL MODEL

The technique that you will be studying in this course is relatively new as far as educational methodologies are concerned. As such, it has its fair share of fervent supporters and equally fervent critics.

It is our opinion that both supporters and critics are equally sincere in the variety of arguments they now provide regarding the rel-

ative merits of the technique. Ultimately, you will have to make your own decision regarding the appropriateness of the technique. At this point let's look at the argument most often offered against the use of the methods derived from this technique.

Briefly stated, this argument is:

SINCE THE TECHNIQUE IS ONLY CONCERNED WITH OBSERVABLE BEHAVIORS, THE UNDERLYING CAUSE OF THE BEHAVIOR IS NOT DEALT WITH AND THE PROBLEM IS NOT REALLY CORRECTED.

The basis for this argument lies in the assumption that for every behavior there is a specific cause. This method of explaining behavior is called the Medical Model because in the same way that a disease, like pneumonia, is known to be caused by a specific virus, it is assumed some type of internal cause exists for all behaviors that we observe.

In Chuck's case, for example, his head-banging was said to be caused by his guilt feelings. Those who use the medical model to explain behavior argue that just as pneumonia cannot be cured without dealing with the virus that causes it, Chuck's head-banging cannot be eliminated until his feelings of guilt have been eliminated.

One of the major problems of applying the medical model to all human behavior is that a child with a behavior problem is usually not sick in the medical sense. No virus or foreign organism has entered his body. In other words, as far as medical science presently knows, there is no specific virus that causes Chuck's guilt feelings.

1.4 THE BEHAVIORAL MODEL

During this course we will be studying the Behavioral Model as an alternative to the medical model. The behavioral model, as we have already mentioned, is concerned with the study of public behavior, in the belief that even though all human behaviors cannot be related to an exact cause,

they can be related in a precise and unambiguous way to the observable consequences which follow the occurrence of the behaviors.

For example, Chuck's head-banging behavior was observed to result in his receiving attention from the attendant. In similar situations, instructing the attendant to place children who engage in this type of behavior in an isolation room immediately after they hit their heads and to give them attention only when they weren't banging their heads has resulted in the complete elimination of head-banging behavior.

This is an example of the application of the behavioral model. In other words, without directing any attention to the private behaviors which are thought to be the cause of head-banging behavior, the head-banging behavior can be eliminated as a result of a careful analysis of the relationship between the head-banging behavior and the consequences that follow the head-banging behavior.

As you will see, the majority of behaviors that you will be concerned with, while generally more complex and less dangerous to the child than head-banging, can be modified without concern for identifying their cause.

1.5 PROBLEMS WITH THE USE OF LABELS

Special Education has more than its share of labels used for the purpose of categorizing children. Although a general trend towards doing away with labels is becoming apparent, the use of labels is still a common everyday practice throughout most of the profession. Let's consider now three of the more important problems which result from the use of labels.

A. USING LABELS TO EXPLAIN BEHAVIOR

Probably the most common mistake we make is to assume that we have identified the cause of a behavior by using the label that we originally

gave the behavior itself. For example, we call a child who doesn't sit still and pay attention for any length of time "hyperactive" and then we say that his problem, the lack of attention, is explained by the fact that he is "hyperactive". The reasoning here is, of course, completely circular and labeling the child hyperactive adds nothing whatsoever to what was already known about the child's behavior.

Likewise, it is common practice to label a child who is substantially behind the rest of his class in his academic subjects "mentally retarded". If you were to ask the person who assigned the label to the child how he knows the child is mentally retarded, he would probably tell you that the child was labeled retarded because he was substantially behind the rest of his class in his academic subjects, as evidenced by his scores on certain tests. As in the case of the child who was labeled hyperactive, the label will now be used as the cause of the behavior. In other words, if you had asked the same person who labeled the child retarded why the child was substantially behind in his academic subjects, you probably would have been told that it was due to the fact that the child was mentally retarded. Again the line of reasoning followed is completely circular and nothing new has been learned about the child's actual behavior.

B. EFFECTS OF LABELS ON EXPECTATIONS

It is difficult for most of us to "see" past the labels that are assigned to students to the actual behaviors that they engage in. All too often, even those who are aware that using labels to explain behavior is unjustifiable will make the mistake of imposing upper limits on the child's ability which actually reflect the limits implied by the label itself.

The extent to which a teacher's expectation of the student may actually influence the student's behavior has been demonstrated in the now classic study conducted by Rosenthal and Jacobsen (1). In this study approximately 20% of the students in an elementary school were selected at random and their teachers were told that these children were going to do particularly well during the school year based on their performance on an I. Q. test which emphasized verbal and reasoning ability.

Eight months later all of the children in the school were tested again and the results clearly indicated that those children whose teachers had been told would do well showed a statistically significant greater gain in achievement on the test when compared with those children for whom no information had been given.

What do you think might have happened had the teachers been given negative information about these students? Had the researchers done so, it would, of course, have been unethical; however, research suggests that negative expectations go hand-in-hand with the labels we routinely give children in our present educational structure. Thus the "trainable child" is not expected to be able to do the work of the "educable child" who, in turn, is not expected to be able to do the work of the "normal child" and so forth.

As a vivid example of an exception to these expectations, consider the case of Terry Holder (2), whose I. Q. was 57 in October, 131 the following June, and "untestable" twelve months later. In the first instance Terry was an "educable retarded child", in the second instance he was a "gifted child", while in the third instance he was a "trainable retarded child".

Terry's impressive increase in I. Q. came about as a consequence of his exposure to an individualized program which involved, among other

things, the use of candy as a consequence for correct answers. The substantial decrease in his I. Q. occurred when Terry was transferred to a regular classroom as a result of his parents moving out of the district which contained the experimental program.

A study by Gregersen (3) provides similar data. In her study, twenty-five children, whose behavioral difficulties were so severe as to require them to be institutionalized, received treatment in a specialized facility utilizing principles derived from the behavioral model.

Following treatment, sixteen of the children were placed in classes for the "trainable retarded", five were placed in classes for the "educable retarded" and four were placed in regular school classes. None of the children required placement in the institution.

Follow-up studies of these children, after six to twenty-four months, indicated that the majority were performing at or above the average of the class in which they were placed.

C. PROGNOSTIC VALUE

A final concern regarding the use of labels is related to the value the label itself may have in indicating the direction that one should follow when attempting to correct the child's deficit.

In actuality, very little information is provided by the label itself. Labeling a child as "educable mentally retarded" or "hyperactive" says nothing about what specific steps one should follow when attempting to overcome the child's deficits.

It would be substantially more helpful to both the child and the teacher if, instead of simply labeling the child, we indicated as precisely as possible the specific behavioral difficulties that the child exhibited.

1.6 UNIT REVIEW

A. Behavior consists of two components:

1. The behavior itself, and
2. The consequence of the behavior.

B. There are two classes of behavior:

1. Public Behavior, so called because it can be directly observed and precisely described, and
2. Private Behavior, which consists of basically internal events, e.g., attitudes, needs, feelings, etc., which cannot be directly observed and/or precisely described.

C. There is a general tendency in Special Education to use the Medical Model to explain behavior. The medical model assumes that there is a specific cause for every behavior, and that unless the cause is corrected, the behavior itself cannot be changed.

D. The Behavioral Model was introduced as an alternative model to the medical model. The behavioral model focuses upon public behavior and makes no assumptions about the cause of behavior. Instead it focuses on changing behavior by determining the relationship between the behavior and the consequences which follow the behavior.

E. Three problems resulting from the use of labels were discussed:

1. Labels are often used to explain behavior. When this is done, the reasoning used is completely circular and no new information is gained about the child.
2. Teacher's expectations of the child can be influenced by labels.
3. Labels themselves usually provide little, if any, direction to the teacher regarding specific steps to follow in remediating the child's difficulties.

1.7 NOTES AND REFERENCES

(1) Rosenthal, R. and Jacobsen, L. "Teacher's Expectencies as Determinants of Pupil's I. Q. Gains". In R. G. Kuhlen (Ed.), Studies in Educational Psychology. Waltham, Mass: Blaisdell Publishing Co., 1968.

(2) Hamblin, R. L., Buckholdt, D., Ferritor, D., Kozloff, M. and Blackwell, L. The Humanization Process. New York: Wiley and Sons, 1971, pp. 103-109.

(3) Gregersen, G. F., Behavior Modification Training Center: An Experimental Program. Unpublished doctoral dissertation. University of Utah, 1970.

UNIT TWO: DESCRIBING BEHAVIOR PRECISELY

UNIT CONTENT

This unit will provide you with guidelines which illustrate the process of describing behavior precisely. The major components of precise description are discussed. A description of a hypothetical student's behavior is evaluated to determine the extent to which it satisfies the criteria for precise description.

A monograph review evaluating the relevance of the concept of brain damage for the fields of education and psychology is included in this unit after the REFERENCES AND NOTES section. The PROFICIENCY ASSESSMENT for the unit does not cover any of the materials in this monograph.

PROFICIENCY ASSESSMENT

Successful completion of this unit will require you to:

A. Name and correctly define the components of precise behavioral description. 8

B. When shown a video-tape segment of a child, correctly describe the child's behavior according to the criteria established for precise description of behavior. 12

Total Points 20

2.1 INTRODUCTION

There is a general tendency to describe students' behaviors through the use of labels. Common labels in the field of special education include "emotional disturbance", "hyperactive", "dyslexia", "minimal brain damage", "neurological impairment", "perceptual disorder" and "mental retardation", etc.

The circularity involved in the use of labels and the effect that labeling the student may have upon the teacher's expectations regarding the student's abilities were discussed in Unit One.

This unit will elaborate on the argument that labels of the type above contribute little to educational planning and that direct descriptions of the student's observable behavioral deficits are, in addition to being more concise and easily understandable, of much more value to the teacher charged with the responsibility of educating the student.

It is not unusual to see students who possess multiple labels. The number of labels a student is burdened with usually increases as a function of the number of times the student has been evaluated. Peter (1) describes a case which illustrates this situation.

The student, Connie*, a twelve year old female, was referred to the Evelyn Frieden Center of Prescriptive Teaching at the University of Southern California. Prior to being referred, Connie had been placed in a public school, two private schools and had, in addition, received psychiatric treatment.

Connie's behavior was described in a variety of ways as follows:

A. First School: "Below average in intelligence. Underachievement due to hyperactive and aggressive behavior. Recommend placing Connie in a private school". (p. 45)

*a fictitious name

B. Second School: "Connie's effective functioning is disturbed. There are indications of disturbance in thought processes. Connie should be referred to a psychiatrist for individual psychotherapy and the parents should receive family therapy." (p. 46)

C. Third School. "Connie exhibited perseveration, probably resulting from minimal cerebral dysfunction. Poor body image is suggestive of emotional disturbance. Visual perception disorder is the cause of her dyslexia. Ego censoring is poor and thought associations are loose. It is probable that she is functioning at a borderline psychotic level. Intellectual skills are depressed." (p. 46)

D. Psychiatric Report: "Ego structure is weak. Anticipation of regard from the environment is atrophying. Minimal restitution of impulse control, hence, behavior should be impulsive, irrational, immediate and electric, and probably ego alien. Diagnosis: Psychotic reaction, with mixed disturbance of thought, probably of an organic matrix with secondary psychogenic features." (p. 46)

In summary, Connie's behavioral difficulties were said to be due to:

A. Mental retardation and/or

B. Emotional disturbance, psychosis and probable brain damage, and/or

C. A perceptual disorder.

Situations like this, where a student is referred to several different agencies because of the same problem and comes away with little more than

a new label or labels for his behaviors, are disappointingly typical.

Quite aside from this, what value does any of this type of diagnostic information have for the teacher who is responsible for Connie's education? More than likely, it has none.

As Peter's comments, regarding Connie's case:

> "The report from the private school was 36 pages long and contained extensive descriptions of her internal emotional reactions and of her perceptual development, but the report did not describe precisely any of Connie's behaviors. Several persons at the Center for Prescriptive Teaching read the report and none could find any information that indicated what Connie could do in the present, or would do in the future." (p. 274)

2.2 DESCRIBING BEHAVIOR PRECISELY

Describing behavior precisely is one of the most important prerequisites to the application of the behavioral model. Generally speaking, we do not describe human behavior precisely. Instead, we say this child is "advanced"; that child is "unruly"; another child is "slow", etc. No one denies the distinct possibility that the person who uses the terms advanced, unruly or slow might know precisely what they mean as far as he is concerned. The problem is simply that these terms probably mean something slightly different to every person who hears them.

The process of describing behavior precisely is not an easy one to master, although once mastered it seems deceptively simple. The guidelines that we will consider now will facilitate the task of precisely describing behavior by outlining three critical components of precise description.

The first component consists of a precise description of the observable conditions in which the behavior occurs. A precise description of the observable conditions in which the behavior occurs involves a description of all those factors which you think may in some way influence the behavior. For example, we know that some children do not perform as well in oral examinations as they do when they are tested with paper and pencil techniques. Consequently, if we were concerned with describing a child's poor reading behavior, we would certainly want to describe the conditions in which his reading behavior was evaluated.

The second component in the precise description of behavior consists of a description of the observable behavior itself. A precise description of observable behavior avoids any value judgments and instead simply describes the behavior observed. For example, if we saw a larger boy approach a smaller one and hit him three times, we would describe this behavior by saying simply that the larger boy had hit the smaller one three times. We wouldn't say that the larger boy was "being aggressive" or "acting out", etc. since "being aggressive" and "acting out" are both internal or private behaviors which cannot be directly observed.

The third component consists of a precise description of the observable consequences. A precise description of the observable consequences of behavior requires that we describe as accurately as possible that which happens immediately after the behavior occurs. Descriptions of consequences reflect only those behaviors which are observable. For example, it is correct to describe the consequences of a child's hitting behavior by reporting that he was hit in return, but it is not correct to say that the consequence of his engaging in this behavior is a "reduction of internal tension", etc.

To summarize, a precise description of behavior consists of the following components:

A. A description of the observable conditions in which the behavior occurs.

B. A description of the observable behavior.

C. A description of the observable consequences which occur immediately after the behavior occurs.

Let's examine the following description of behavior and determine the extent to which it satisfies the criteria for precise description.

> Bill is unable to satisfactorily (90% or better correct) solve the math problems contained in the first unit of the "TEACHUM" Arithmetic Level 1 Series. This unit teaches the skills necessary to do addition problems involving two numbers whose sum is not greater than ten.
>
> Bill earned a math score on the Wide Range Achievement Test which places him at the bottom 10th percentile for his age group. His low score on this test probably explains his poor math performance.

DESCRIPTION OF OBSERVABLE CONDITIONS

No information is provided regarding the important conditions in which the student's arithmetic solving behavior was evaluated; for example, was he tested in an individual or a group situation; how often were the tests given; was he required to respond orally or was the evaluation done with "paper and pencil" tests, etc.?

OBSERVABLE BEHAVIOR

The behavior of concern was described as an inability to satisfactorily solve arithmetic problems contained in a specific set of instructional materials requiring the addition of two one-digit numbers whose sum is not greater than ten.

This description, while adequate for our immediate purpose, is far from being as precise as it could be. A precise description of this behavior would also identify those sub-skills necessary to solve this type of arithmetic problem which the student was unable to complete. The process of analyzing complex behaviors into sub-skills will be discussed in greater detail in Unit Six. A brief overview of this process is included in the Reference and Notes Section of this unit if you wish to review it at this point.

DESCRIPTION OF OBSERVABLE CONSEQUENCES

No information is provided regarding the consequences which occurred. Did the teacher, when she first noted the student's inadequate performance, provide extra assistance; did she assign additional work; did she allow the student to work instead in those subject matter areas in which he did better, etc.?

You may have noticed that the student's inability to satisfactorily do arithmetic was said to be explained by his low score on the math section of the Wide Range Achievement Test. This is an example of the same type of circular reasoning we saw in Unit One.

At best, the low score on the achievement test can be thought of as providing additional evidence that the student has difficulty with arithmetic. That is, the score can serve to confirm what we already know about the student. However, the score itself can neither explain nor be said to be the cause of the student's difficulty with math.

Accordingly, we would judge this description of behavior to be inadequate according to two of the three criteria established for precise description of behavior and partially adequate for one criteria.

You will find it useful when describing human behavior to follow the guidelines outlined above. Remember to avoid the use of words which do not communicate as accurately as possible the important aspects of the behavior you are describing. If your initial attempts at describing behavior precisely seem to be far too lengthy, don't be discouraged. As you gain experience with the technique, your descriptions will become more concise as you learn to identify those aspects of behavior which are important to include in your description and those which are not.

2.3 UNIT REVIEW

The components of precise behavioral description were discussed:

A. The importance of avoiding the use of words or concepts in behavioral descriptions which refer to unobservable or private behaviors was stressed.

B. Three components of precise description were discussed:

1. A description of the observable conditions in which the behavior occurs. Include in your description of the observable conditions all of the observable elements of the condition which you feel may influence the behavior you are describing.

2. A description of the observable behavior itself. Describe the observable behavior as precisely as possible, e.g., if you observed little Jimmy jab himself in the eye with his thumb, say that "Jimmy jabbed himself in the eye with his thumb." Don't say "Jimmy hurt himself", etc.

3. A description of the observable consequences which occur immediately after the observable behavior being observed occurs. Describe these consequences as precisely as possible, e.g., if little Jimmy cries after he jabs himself in the eye, say "Jimmy cried after jabbing himself in the eye." Don't say "Jimmy became very upset after jabbing himself", etc.

2.4 REFERENCES AND NOTES

Task Analysis. Task analysis is the process of identifying, describing and arranging in sequence all of the necessary sub-skills that the student will have to master before he can satisfactorily perform a specific behavior.

For example, it is suggested that there are six sub-skills that a student must master if he is to be able to solve arithmetic problems involving the addition of two one-digit numbers whose sum is not greater than ten. These sub-skills and the sequence in which they are to be taught are reported by Bateman (2) and are listed below:

I. Entering Prerequisite Behaviors

Before beginning this unit the student must be able to:

1. Talk.
2. Respond to verbal direction.
3. Hold a pencil, crayon, or piece of chalk.
4. Make a straight vertical line.
5. Make a plus sign.

II. Instructional Sub-Skills

Each of the sub-skills listed below must be mastered in the sequence indicated before the student can move to the next sub-skill.

1. Count orally from one (1) to ten (10).
2. Count vertical lines.
3. Correctly produce the number of vertical lines indicated by the numerals 1 to 10.
4. Say "plus" when shown the symbol +.

5. Read a number sentence written with lines.

   e.g. When shown the number sentence //// + ///,

   the student will read "four plus three".

6. Read a number sentence written with lines, plus sign, and lines; and then give the correct answer.

   e.g. When shown the number sentence //// + /// =,

   the student will read "four plus three equals seven".

Successful application of the methods derived from the behavioral model requires that a task analysis be conducted for each behavior that we wish to teach a child. We have introduced the concept of task analysis at this point to illustrate the extent to which behavior can be precisely described. For the time being, it will suffice that you are simply familiar with the concept of task analysis since we will consider task analysis in more detail in Unit Six.

(1) Peter, Laurence. Prescriptive Teaching System: Individual Instruction. New York City, New York: Mc-Graw-Hill Book Company, 1972, 44-46.

(2) Bateman, Barbara. The Essentials of Teaching. San Rafael, California: Dimensions Publishing Company, 1971, 36-39.

THE RELEVANCE OF "BRAIN DAMAGE" FOR THE FIELDS OF PSYCHOLOGY AND EDUCATION[1,2]

by

John T. Johnson

Institute on Mental Retardation and Intellectual Development
George Peabody College for Teachers
Nashville, Tennessee

It is the purpose of this paper to review some of the main concepts and theories of "brain damage" in the light of relevant research and to examine their utility for the fields of psychology and education. This paper does not purport to be an extensive review of the literature. Such reviews may be found in Birch (1964), Robinson and Robinson (1965), Clark (1965), and Masland, Sarason, and Gladwin (1958). A comprehensive bibliography of research on "brain damage" may be found in Clements (1966).

A great deal of confusion and lack of communication has resulted from the inability of the people interested in this area to agree on the common usage of a term. Clements (1966) has gleaned from the literature a list of some 37 labels which run the gamut from exogenous child, to attention disorders, to cerebral dys-synchronization syndrome. For the purpose of clarity and in order to maintain some sort of veridicality to the question at hand, the term "brain damage" will be used to denote a diagnosis which is based on behavior and made in the absence of hard evidence of neurological impairment. The term "neurologically impaired" will be used to denote a diagnosis based on conclusive neurological evidence of organic impairment.

Definition and Diagnosis

In the past twenty years there has been increasing interest in an entity known as the "brain-damaged child." The beginning of this recent interest can be traced to the attempts of Strauss and his colleagues Lehtinen, Werner, and Kephart to apply Goldstein's (1941) work on WW I brain-injured soldiers to children. Among Goldstein's contributions to the characteristics of brain damage are those of perseveration and concrete thinking. Another somewhat more dubious honor attributed to Goldstein is the development of the first tests purported to diagnose brain damage.

The classic paper in the area is that of Strauss and Lehtinen

---

[1]The research reported herein was supported by grants No. HD 973 and No. HD 43 from the National Institute of Child Health and Human Development.

[2]Reprinted here with the permission of the author and the Institute on Mental Retardation and Intellectual Development, George Peabody College for Teachers, Nashville, Tennessee.

(1947) in which they defined a brain-injured child as one

> --who before, during or after birth has received an injury to, or suffered an infection of, the brain. As a result of such organic impairment, defects of the neuromotor system may be present or absent; however, such a child may show disturbances in perception, thinking, and emotional behavior, either separately or in combination. These disturbances can be demonstrated by specific tests. These disturbances prevent or impede a normal learning process (p. 4).

Strauss argued that children with known neurological impairment show certain behavioral characteristics, and therefore, other children who show these characteristics should be classified as "brain-injured." Such children were actually diagnosed by Strauss on the basis of their behavior, and then their histories were searched for some hint of organic involvement. Four behavioral criteria characteristic of these children were suggested by Strauss, and although Clement's (1966) search of the literature produced some 320 such characteristics, these four, which have come to be known as "Strauss Syndrome," have been at the core of most descriptions: (1) perceptual disorders; (2) perseveration; (3) thinking and conceptual disorders; and, (4) behavior disorders (hyper-activity and disinhibition). According to Strauss' definition, however, these behaviors were a result of neurological impairment and this allowed a diagnosis of "brain damage" to be made even in the absence of demonstrated neurological impairment. Therefore, one does not have to search far to find the source of conceptual fuzziness and ambiguity which has plagued the thinking in this area.

As Gallagher (1966) points out, the term "brain damage" came to be used as a label for children for whom the diagnosis could not be validated. The neurologist cannot find hard evidence of neurological damage but notes that the child has several "soft signs". His suspicions are confirmed by the psychologist who finds signs of brain damage in the child's test performance and is glad to have his finding supported by the neurologist. Birch (1964) draws the analogy of a town well-known for its crack garrison which fired the cannon each day at five o'clock sharp. A visitor, curious as to how the exact time was determined, found that the master sergeant set his watch each morning as he passed the shop of a famous clockmaker. Upon inquiring of the clockmaker how he determined the exact time, the clockmaker replied that he was very fortunate to be living in a town in which the garrison fired a cannon at exactly five o'clock.

Since brain damage has come to be a predominantly behavioral diagnosis, the responsibility lies largely with the psychologist. Unfortunately, psychologists historically have had a penchant for labeling, e.g., schizophrenia, infantile autism, mentally retarded. It seems to reduce dissonance in our system to be able to catalog a disorder and more often than not the outcome of evaluation is the pinning of a label

to the subject. We have even supposedly refined our techniques so sharply that we are able to identify only a small amount of brain damage, thus the term "minimal brain damage (Pasamanick & Knoblick, 1959)." As Reed (1966) concludes, however, our assumptions have far exceeded our knowledge.

The confusion in the area is typified by Dunn's (1966) finding that clinical teams from child study centers in the southern United States were unable to agree on the percentage of cases that should fall into the categories of "brain-injured," "emotionally disturbed," and "mentally retarded." He concluded that "the diagnostic category selected depended on the training, professional make-up, philosophy, and pre-disposition of the diagnostic team. Three different groups, depending on their bases, could label the same child brain-injured, emotionally disturbed, or mentally retarded (p. 2)." Yates (1954) and Klebanoff, Singer, and Wilensky (1954) found in reviews of the literature that tests constructed to diagnose brain damage similarly have had little success in making the differential diagnosis among these disorders.

Perhaps the most specious assumption made in any diagnosis of brain damage is that such a diagnosis explains a child's behavior. Parents and teachers are supposedly able to look back and see that the child acted in such a manner because he was brain damaged. Incidentally there is some evidence (Morris & Dozier, 1961); Kennedy & Rameriz, 1966; Clements & Peters, 1962) that the increase in the number of diagnoses of brain damage may be partially attributed to the number of parents who have become increasingly familiar with psychological theories concerning the effects of adverse child-rearing practices and are, in effect, relieved of responsibility for the child's behavior by such a diagnosis.

According to Birch (1964), however, (1) the evidence that children who have certain behavior patterns do in fact have neurological impairment is poor, and (2) many children with known neurological impairment do not exhibit patterns of behavior presumably characteristic of "brain damage." Others have come to the same conclusions. "Actually there is no syndrome, no aggregate of neurological signs, that can be correlated with any specific learning and/or behavior disorder (Grosman, 1966, p. 63)." "It would be difficult on the basis of our present knowledge to ascribe very specific behavior to specific organic defects and it would be rash indeed to declare that any lesion, diffuse or discrete, regardless of degree or localization, would tend to produce the same pattern of behavior (Wortis, 1961, p. 205)." "Behavioral effects of a brain injury cannot reflect the injury directly but rather the interaction between an organism which has certain characteristics and a psychological environment which has its characteristics (Sarason, 1962, p. 9)." Finally we have Birch's (1964) conclusive statement that "we never see an individual whose disturbed behavior is a direct consequence of his brain damage (p. 8)."

Supposedly one of the basic assumptions behind the diagnostic process is that if the disorder can be labeled, some sort of differential

treatment can be prescribed. Although, as has been noted, this is not always the motivation behind diagnoses, there have been several approaches made to remediate the deficits of the brain-injured and/or neurologically impaired child. These approaches may be generally divided into two groups. One group bases their remediation on developmental theory and stresses the process of learning while the other group stresses the current level of functioning of the child and places their emphasis on the product of learning.

Process Centered Approaches to Remediation

Those approaches which stress the process of learning begin with the assumption that there is a specific pattern of developmental sequences through which all children pass, and the presence of a learning disorder may be due to the fact that neurological impairment (even though undetectable) has prevented the natural unfolding of this pattern. At the base of the Doman-Delacato approach (1960) is the classical notion that "ontogeny recapitulates phylogeny," i.e., the development of the individual nervous system parallels the evolutionary development of the nervous system. Their remediation program begins with the most primitive of motor movements and is based on the Principles of Developmental Direction: development procedes from proximal to distal, from mass to specific, and from head to foot. They believe that an extremely important aspect of the training is that no steps in the sequence are skipped. Special emphases are placed on crawling before creeping and on such things as body awareness and laterality as indices of neurological organization.

Kephart (1963a, 1963b) stresses the organization of perceptual abilities. According to his theory brain-damaged children develop specific skills as a means of compensation but have lost the ability to organize these skills. Kephart's training procedure is aimed at helping the child develop generalizations which allow him to coordinate his abilities. His method, which is characteristic of the developmental approach, stresses the following steps: 1) retrace the stages of development; 2) determine the point of breakdown; 3) supply the necessary learning process; 4) insure their generalization; and 5) reactivate the developmental process.

Kephart stresses a Montessori-like multisensory approach as does Frostig (1964) who is concerned specifically with visual perception. Her program is designed to evaluate the developmental level of visual perception and to remediate any lags which may be present. Later reference will be made to Frostig, but she is rightly mentioned here because of her developmental approach to remediation.

The support of these theories has, unfortunately, been more emotional than empirical. For the most part, these theorists as a group have not put their theories to the rigorous experimental test. Their argument is similar to that encountered in the area of psychotherapy, i.e., it

would be immoral to withhold a treatment which may be beneficial from a child in order to establish a control group. As Haywood (1967) suggests, it is probably more immoral to use techniques which have no proven value than to spend one's time and money trying to develop techniques which do.

In his book, Neurological Organization and Reading, Delacato (1966) reports several studies done by other people which lend varying degrees of support to his theory. These studies, however, are not as carefully controlled as could be desired. The studies reported which did use control groups leave unanswered the question as to whether any physical exercise, sequenced or not, or perhaps the increased attention given to children receiving special training procedures, could produce the results claimed to be due to the Doman-Delacato program.

There are two other studies not included in the Delacato book which shed some light on the relationship between the Doman-Delacato theory and reading. Robbins (1966) found no relation between neurological organization, as measured by creeping and laterality, and the reading ability of second graders. The Doman-Delacato program was not found to be related to improved reading ability and in addition had no effect on the development of laterality. Similarly, Evans (1966) found no relationship between creeping skills and reading achievement in first graders. Another test of the theory and one which appears to have controlled for the factors mentioned earlier was done by Kershner (1967) with retarded children. While he found the group which received the Doman-Delacato program to be superior in IQ, the results are clouded by a pre-treatment IQ difference between the groups.

Haywood (1967) cites one study designed to evaluate the Kephart method. At the end of nine months there were no differences between retarded children who had received the Kephart program and controls who had received the usual school program. In a non-statistical comparison, Argy (1965) provides some evidence for the Montessori multisensory approach as compared to an orthodox approach. Allen, Dickmas, and Haupt (1966) concluded that greater variance in the experimental than in the control group implied the superiority of the Frostig method.

Another approach, perhaps the most widely accepted to date, is that designed by Lehtinen (1947) for the education of the "Strauss Syndrome" child. The emphasis here is on behavior control through a reduction of environmental stimuli so that concept formation can be stressed. The principles include the following: an undistracting school environment; individualized instruction; an elemental as opposed to global approach; the use of colored words and letters; motor activity; and emphasis on the basic tool subjects with other subjects and social activities de-emphasized. Rappaport (1966) attributes the supposed effectiveness of such techniques to the allowing of the child an opportunity to bring his behavior under cortical control.

The most comprehensive study of the efficacy of Lehtinen techniques was done by Cruickshank, Bentzen, Retzeburg, and Tannhauser (1961). A

comparison was made between children who were diagnosed as neurologically impaired and children diagnosed as brain-damaged with no neurological impairment. Over a two-year period half the children in each group were trained with Lehtinen techniques and half were trained by any method the teacher chose. Unfortunately, some of the control group teachers chose to use Lehtinen techniques. The study found no lasting differences between the two groups in their response to Lehtinen techniques.

The Lehtinen idea that hyperactive children will learn better in a non-stimulating environment has received little experimental support. Cruse (1967) found that brain-injured and cultural-familial retardates did not differ in performance under different degrees of distractibility except at more severe levels of brain injury. Both groups profited from a reduction in stimulation. Burnette (1962), however, found no difference in the performance of either high or low activity level retarded children regardless of whether they were in a stimulating or a restricted classroom. Neither the characteristics of the child nor the characteristics of the classroom produced any differential effects. A review of the activity level research by Cromwell (1963) reveals some support for the Lehtinen position, but the weight of the evidence seems to show that many children, especially retardates, reduce their levels of activity under increased stimulation and become more active under conditions of reduced stimulation. Haywood and Tapp (1966) cite evidence which supports the position that intensive multisensory stimulation may actually result in more efficient learning.

The Lehtinen assumption that the brain-injured child is deficient in concept formation has also not received experimental support. Butler, Graham, and Birch (1966) in a group of children who were referred by their teachers because of learning disorders, found among them some whom they diagnosed as brain damaged. These children, however, did not differ in reading disabilities or behavioral disorders from those children not diagnosed as brain damaged. Stemmer (1964), likewise, found no difference between children with brain-damage and normal children in reading, language, and arithmetic. He did find the brain-damaged children to be inferior in writing, and those with more marked signs were rated by their teachers as having poor concentration and greater emotional instability. This latter finding is unclear since the teachers also rated these children as being no different in restlessness or nervousness.

Capobianco and Miller (1958) found no difference in the reading ability or the reading process of neurologically impaired children and cultural-familial retarded children. In a previous study Capobianco (1954) found no difference between neurologically impaired and cultural-familial retarded children in terms of arithmetic achievement, rigidity, reversals and understanding the zero concept.

Vance (1956) subjected non-neurologically impaired and neurologically impaired children in a residential school to a structured reading-readiness program and found no difference, indicating both groups had learned equally well. Frey (1960), however, in a retrospective study

found that neurologically-impaired, retarded children who had been in a program using Lehtinen techniques were superior in silent reading tests and in sound blending ability to non-neurologically impaired retardates who had not received Lehtinen training. The Lehtinen group also showed a normal profile while the regular group did not. No sound conclusions may be drawn from this study since there was no control group of non-neurologically impaired children who received Lehtinen training.

The theories discussed in this section have one thing in common, the application of techniques designed to remediate flaws in the learning process which were caused by brain damage. The amount of research concerning the efficacy of these remediation techniques is quite small in comparison to the amount of application they have received. The limited research reported which has adequate experimental controls does not support these theories and techniques either as a group or as individual theories.

Product Centered Approaches to Remediation

The second approach to the education of the brain-injured child, the product centered approach, is one which is not only more in line with current psychological thinking but which also could have broad implications for future approaches to all special education. Where the approaches discussed earlier stressed the developmental process or the etiology of the disorder, this approach largely ignores etiology and places the focus on the disorder itself.

Characteristic of this approach is an operational definition of a specific learning disorder tied to a test which measures the strengths and weaknesses of a child's current functioning. On the basis of the test findings and without regard to etiology (some exceptions will be noted later) a program of remediation is planned. An individually tailored program would seem to be more realistic than a single educational program for children who have in common only that they are different.

The transition of the focus from etiology to the disorder itself may be seen in the approach taken by Myklebust (1963, 1965). Although he emphasizes the diagnosis and remediation of specific learning disorders, he feels some need to retain the concept of inferential diagnosis based on etiology as is evident by his label of "psycho-neurological learning disorder." Frostig (1964) may also be included in this transition group because of her emphasis on diagnosis and developmental treatment of specific visual disorders. Gellner contributed to the movement by identifying four areas of specific disabilities for which Epps (1958) subsequently developed a teaching program.

One of the most widely used definitions of a specific learning disability is that of Kirk (1963, p. 41).

> A learning disability refers to a retardation, disorder, or delayed development in one or more of the processes of speech, language, reading, spelling, writing, or arithmetic resulting from a possible cerebral dysfunction and/or emotional or behavioral disturbances and not from generalized mental retardation, sensory deprivation, or cultural or instructional factors.

It should be noted that the definition specifically excludes the deaf, blind, culturally deprived, and the mentally retarded. The reason for the exclusion of the deaf and blind is understandable when one takes into account that Kirk's remediation techniques are aimed at bolstering the weaknesses of the child. The mentally retarded child is excluded because he is assumed to have a generalized learning disorder. The culturally deprived child is excluded because it is assumed that under normal conditions his deficits would be corrected without special attention. The last two exclusions would appear to be made on rather broad assumptions, and whether or not they are justified would seem to be an empirical question which must be answered for each child rather than on a generic basis. It is quite likely that some culturally deprived and some mentally retarded children would profit from such an approach.

Kirk, in addition to his general contribution to the concept of specific learning disabilities, has applied the concept in the area of linguistics. The Illinois Test of Psycholinguistic Abilities (Kirk & McCarthy, 1961) provides a measure of nine independent linguistic abilities. For each ability a program of remediation has been constructed so that any given performance profile can be matched. Although Kirk teaches to the weaknesses, it is an empirical question as to whether it would be more advantageous to teach to the strengths or perhaps to the weaknesses through the strengths. There is no evidence at present to support either a strength or weakness approach over the other (Bateman, 1966).

The emphasis on specific abilities may be seen to parallel the thinking that lies behind Guilford's (1959) analysis of the structure of the intellect into the specific factors of intelligence. Also, since the approach is specific and not global in nature, it lends itself easily to evaluation. One is able to use the diagnostic instrument to check on the progress made in the program. There is, however, the grave danger of allowing the diagnostic instrument to become the criterion. Unless an adequate performance on the test is indicative of a general competance in the ability being measured, all the program will have accomplished is the invalidation of the test as a diagnostic instrument.

Although the specific learning disability approach is in the experimental stage, Bateman (1966) cites several studies which give encouraging results. The general concept of the training of specific abilities was shown to be feasible in a study by Gallagher (1960). One group of neurologically impaired children were given a three-year period of tutoring based on their individual strengths and weaknesses. The group

was found to significantly improve over a control group in the areas of attention span and general intellectual improvement.

A similar approach to remediation is that based on the experimental analysis of behavior (E.A.B.). In the experimental analysis of behavior approach (Bijou, 1965), academic learning, like other kinds of learning, requires that something be done to get the child to behave academically. The effectiveness of the learning environment controls the occurrence of academic behavior. It is composed of the physical arrangement of the classroom, the learning materials, the behavior of the children in the class, and most important, the behavior of the teacher. The environment can be evaluated in terms of the kinds of actions it produces and maintains in the child. "Failures in learning are treated as failures in the programs (and/or motivational system), not as failures in the child. From this point of view it is neither meaningful nor practical to attribute failures to learn to laziness, alexia, perceptual difficulty, dsylexia, learning blocks, clinically diagnosed brain-damage and the like (Bijou, 1965)."

It is possible that a combination of the Kirk and the experimental analysis of behavior approaches would be the most feasible. Although no use is made of tests per se in the E.A.B. approach, an emphasis is placed on operational terms, and a remediation program is based on each individual child's level of performance regardless of etiology. Working within this behavioral setting, the Kirk approach would contribute diagnosis and evaluation instruments, and remediation programming would be based on behavior shaping techniques.

The concept of specific learning disorders, then, may be seen to have several advantages over brain damage as a usable concept for the special educator. Heretofore, when the diagnosis of brain damage was given to the child with a learning disorder, the diagnosis often suggested no remediation techniques, and in many cases put a stamp of finality on the behavior of the child. The importance of the virtual neglect of etiology in the learning disorder approach is that the emphasis is shifted from the mysterious depths of the nervous system of the child to observable behavior. The connotation is that there is a program by which any child can overcome his learning disorder if only we are smart enough to discover it. Thus, there are no poor learners, only poor teachers.

The increasing interest in the type problem referred to in this paper is reflected by a movement in the Council for Exceptional Children to establish a division for children with learning difficulties. The definition put forward by Barsch (1967) in a position paper places the emphasis on the child as a failing learner. "A learner has an educational disability when he cannot consistently meet the demands of the curriculum to which he is assigned." This tentative definition is much more in keeping with the position taken in this paper than that adopted as the working definition for the Division which again puts forth the concept of the brain-damaged child.

A child with learning disabilities is one with adequate mental ability, sensory processes, and emotional stability who has specific deficits in perceptual, integrative, or expressive processes which severely impair learning efficiency. This includes children who have central nervous system dysfunction which is expressed primarily in impaired learning efficiency.

It is recognized that the definition is necessarily broad in order to include all the approaches of those people interested in the area. Perhaps the increased communication, organization, and research engendered by the establishment of the Division will bring into sharper focus the behaviors which have previously resulted in the labeling of a child as "brain-damaged."

Conclusions

1. Research has not demonstrated a consistent correlation between specific behaviors or behavioral deficits and neurological impairment in children.

2. Allowing that some specific correlations could be made, behavior would still be shaped by environmental interaction.

3. Remediation techniques based on a diagnosis of brain damage have not proven to be differentially effective in replicable research studies.

4. Therefore, it has not been shown that a diagnosis of "neurological impairment" or "brain damage" makes a contribution to the behavioral understanding of a child, or suggests any specialized remediation techniques.

5. It must be concluded that the concept of "brain damage" has no value for the behavioral sciences of psychology and special education.

6. The concept of "specific learning disorder" combined with Skinnerian behavior shaping techniques would appear to be a promising new approach to remediation of disabilities in those children whose behavioral and educational characteristics previously earned them the label of "brain-damaged."

REFERENCES

Allen, R. M., Dickmas, I., & Haupt, T. D. A pilot study of the immediate effectiveness of the Frostig-Horne Training Program with educable retardates. Exceptional Children, 1966, 33, 41-42.

Argy, W. P. Montessori versus orthodox. Rehabilitation Literature, 1965, 26, 294-304.

Barsch, R. H. Learning disabilities--a statement of position. Paper presented at the 45th Annual Convention of the Council for Exceptional Children, St. Louis, 1967.

Birch, H. G. The problem of "brain damage" in children. In H. G. Birch (Ed.), Brain damage in children. New York: The Williams & Wickens Company, 1964.

Burnette, E. Influence of classroom environment on word learning of retarded with high and low activity levels. Unpublished doctoral dissertation. Peabody College, 1962.

Capobianco, R. J. Qualitative and quantative analyses of endogenous and exogenous boys in arithmetic achievement. In L. M. Dunn & R. J. Capobianco (Eds.), Studies of reading and arithmetic in mentally retarded boys. Monograph of the Society for Research in Child Development, 1954, 19.

Capobianco, R. J., & Funk, R. A. A comparative study of intellectual neurological, and perceptual processes as related to reading achievement of exogenous and endogenous retarded children. Syracuse, N. Y.: Syracuse University Research Institute, 1958.

Clark, G. A summary of the literature on behavior disorders in brain-damaged children. Peabody Papers in Human Development, 1965, 2, No. 12 (George Peabody College for Teachers).

Clements, S. D. Minimal brain dysfunction in children: terminology and identification. Washington, D. C.: National Institute of Neurological Diseases and Blindness, 1966 (NIND Monograph No. 3).

Clements, S. D., & Peters, J. E. Minimal brain dysfunctions in the school-age child. Archives of General Psychiatry, 1962, 6 185-197.

Cromwell, R. L., Baumeister, A., & Hawkins, W. F. Research in activity level. In N. R. Ellis (Ed.), Handbook of mental deficiency: psychological theory and research. New York: McGraw-Hill, 1963, 632-663.

Cruickshank, W. An introductory overview. In W. Cruickshank (Ed.), The teacher of brain-injured children. Syracuse: Syracuse University Press, 1966.

Cruse, D. B. Effects of distraction upon the performance of brain-injured and familial retarded children. American Journal of Mental Deficiency, 1961, 66, 86-92.

Delacato, C. H. (Ed.) Neurological Organization and Reading. Springfield, Ill.: Charles C. Thomas, 1966.

Doman, R. J., Spitz, E. B., Zucman, E., Delacato, C. H., & Doman, G. Children with severe brain injuries. Journal of the American Medical Association, 1960, 174, 257-262.

Dunn, L. M. Minimal brain dysfunction: a dilemma for educators. IMRID Papers and Reports, 1965, 2, No. 1 (George Peabody College for Teachers).

Epps, H. O., McCammon, G., & Simmons, Q. D. Teaching devices for children with impaired learning: a study of the brain-injured child from research project 50 at the Columbus State School. Columbus, Ohio: Columbus State School, 1958.

Evans, J. R. Creeping skills and reading achievement of first grade children. Paper presented at the meeting of the American Association on Mental Deficiency, Chicago, May, 1966.

Frey, R. M. Reading behavior of brain-injured and non-brain-injured children of average and retarded development. Dissertation Abstracts. Vol. 22. Ann Arbor: University Microfilms, Inc., 1961.

Frostig, M., & Horne, D. The Frostig program for the development of visual perception. Chicago: Follett, 1964.

Gallagher, J. J. A comparison of brain-injured and non-brain-injured mentally retarded children on several psychological variables. Monograph of the Society for Research in Child Development, 1957, 22, 3-79.

Gallagher, J. J. The tutoring of brain-injured mentally retarded children. Springfield, Ill.: Charles C. Thomas, 1960.

Gallagher, J. J. Children with developmental imbalances: a psycho-educational definition. In W. Cruickshank (Ed.), The teacher of brain-injured children. Syracuse: Syracuse University Press, 1966.

Gellner, L. A neuropsychological concept of mental retardation and its educational implications. Chicago: Dr. Julian D. Levenson Research Foundation for Mentally Retarded Children, 1959.

Guilford, J. P. Three faces of intellect. American Psychologist, 1959, 14, 469-479.

Goldstein, K., & Sheerer, M. Abstract and concrete behavior--an experimental study with special tests. Psychological Monographs, 1941, 53, No. 2.

Grossman, H. J. The child, the teacher, and the physicians. In W. Cruickshank (Ed.), The teacher of brain-injured children. Syracuse: Syracuse University Press, 1966.

Haywood, H. C. Perceptual handicap: fact or artifact? Child Study, 1967, 28, 2-14.

Haywood, H. C., & Tapp, J. T. Experience and the development of adaptive behavior. In N. R. Ellis (Ed.), International review of research in mental retardation. New York, N. Y.: Academic Press, 1966.

Kennedy, C., & Ramirez, L. S. Brain damage as a cause of behavior disturbance in children. In H. G. Birch (Ed.), Brain damage in children. New York, N. Y.: The Williams and Wilkins Co., 1964.

Kephart, N. C. The brain injured child in the classroom. Chicago, Ill.: National Society for Crippled Children and Adults, Inc., 1963a.

Kephart, N. C. Perceptual-motor correlates of learning. In S. A. Kirk & W. Becker (Eds.), Conference on children with minimal brain impairment (held at University of Illinois) 1963b.

Kershner, J. R. Doman-Delacato's theory of neurological organization with retarded children. (Submitted for publication to Exceptional Children)

Kirk, S. A. A behavioral approach to learning disabilities. In S. A. Kirk & W. Becker (Eds.), Conference on children with minimal brain impairment (held at University of Illinois) 1963.

Kirk, S. A. The diagnosis and remediation of psycholinguistic disabilities. Institute for Research on Exceptional Children, University of Illinois, 1966.

Kirk, S. A., & McCarthy, J. J. The Illinois Test of Psycholinguistic Abilities--an approach to differential diagnosis. American Journal of Mental Deficiency, 1961, 66, 388-442.

Klebanoff, S. G., Singer, J. L., & Wilensky, H. Psychological consequences of brain lesions and ablations. Psychological Bulletin, 1954, 51, 1-41.

Morris, D. P., & Dozier, M. A. Childhood behavior disorders: subtler organic factors. Texas State Journal of Medicine, 1961, 57, 134-138.

Mykleburst, H. Psychoneurological learning disorders in children. In S. A. Kirk & W. Becker (Eds.), Conference on children with minimal brain impairment (held at University of Illinois) 1963.

Mykleburst, H. R. Learning disorders. Rehabilitation Literature, 1965, 25, 354-360.

Pasamanick, B., & Knoblock, H. Syndrome of minimal cerebral damage in infancy. Journal of the American Medical Association, 1959, 70, 1384-1387.

Rapp port, S. R. Personality factors teachers need for relationship structure. In W. Cruickshank (Ed.), The teacher of brain-injured children. Syracuse, N. Y.: Syracuse University Press, 1966.

Reed, B. C. Some relationships between neurological dysfunction and behavioral deficits in children. In S. A. Kirk & W. Becker (Eds.), Conference on children with minimal brain impairment, (held at University of Illinois) 1963.

Robbins, M. R. A study of the validity of Delacato's theory of neurological organization. Exceptional Children, 1966, 32, 517-523.

Robinson, H. B., & Robinson, N. M. The mentally retarded child. New York, N. Y.: McGraw-Hill, 1965.

Rutler, M., Graham, P., & Birch, H. G. Interrelation between the choreiform syndrome, reading disability and psychiatric disorder in children of 8-11 years. Developmental Medicine and Child Neurology, 1966, 8, 149-159.

Sarason, S. B. Some aspects of the brain-behavior problem. Paper presented at the Second National Northwest Summer Conference: The special child in Century 21, Seattle, 1962.

Skinner, B. G. Science and human behavior. New York, N. Y.: MacMillan, 1953.

Stemmer, C. J. Choreatiforme Bewegungourust. University of Groningen doctoral thesis, 1964.

Strauss, A. A., & Lehtinen, L. E. Psychopathology and education of the brain-injured child. Vol. I. New York: Grune and Stratton, 1947.

Strauss, A. A., & Kephart, N. C. Psychopathology and education of the brain-injured child. Vol. II. New York: Grune and Stratton, 1955.

Vance, H. S. Psychological and educational study of brain-injured and non-brain damaged mentally retarded children. Dissertation Abstract, 1956, 17, 1033.

Wortis, J. A note on the concept of the "brain-injured child." American Journal of Mental Deficiency, 1956, 61, 204.

Yates, A. J. The validity of some psychological tests of brain damage. Psychological Bulletin, 1954, 51, 359-379.

UNIT THREE: RECORDING BEHAVIOR

UNIT CONTENT

This unit discusses applications of five methods useful for recording behavior. A hypothetical sample of reading behavior is included to allow you to apply two of these recording methods. Suggestions intended to facilitate the application of these recording methods are included.

PROFICIENCY ASSESSMENT

Successful completion of this unit will require you to:

A. Name the five methods of recording behavior discussed and correctly explain how one records behavior with each. 10

B. When shown a video-tape segment of a child engaging in a specific behavior, correctly:

1. Record the behavior using the frequency method. 4
2. Record the behavior using the rate method. 6

Total Points 20

3.1 INTRODUCTION

The process of describing behavior precisely was discussed in the previous unit. This unit is concerned with methods for recording the behavior once it has been precisely described.

Recording behavior is another of the important prerequisites to the application of the behavioral model. Recording behavior per se is not a new concept as far as education is concerned. Teachers routinely record grades, which represent the student's behavior, and make entries in cumulative folders regarding the academic and social behavior of their students and so forth.

Recording behavior in the manner necessary to apply the principles of the behavioral model is a relatively new concept as far as education is concerned, however. Seldom have we ever been concerned (or for that matter, needed to be concerned) with recording the exact number of arithmetic problems that a student solves per minute, or the number of times that a student leaves his seat without permission per hour, etc.

The major difference between the traditional method of recording global student behavior, such as grades and anecdotal records, and the recording methods which will be presented in this unit is that the latter methods focus on recording relatively small bits of behavior exactly as they occur. Further, these methods usually record behavior with some reference to the length of time that the behavior occurred or an indication of how often the behavior occurred within a certain time period.

The four most commonly used methods for recording behavior are Percent Correct, Frequency, Rate, and Time Sampling. We will consider each of these methods now in greater detail.

3.2 THE PERCENT CORRECT METHOD

Percent Correct is the method which is most commonly used and thus requires little elaboration here. Percent Correct is determined by dividing the number of times that a behavior is performed correctly by the number of times that the behavior is attempted and multiplying the result by 100. Teachers most often use the percent correct method when correcting tests, etc.

Other applications of this method can be seen in training situations where the teacher is working on an individual basis with a child. For example, the teacher may be training the child to imitate her behavior, such as touching her nose. If the teacher touches her nose twenty times and the child touches his ten times, then the student's percent correct response is ten divided by twenty, times 100 or 50%.

Keeping track of the number of correct responses in a situation like this is usually accomplished by making a series of marks on a piece of paper which correspond to the number of correct responses the child makes. Percent correct is determined after a certain number of requests for the behavior have been presented to the child.

> For example, suppose that the teacher in the situation described above requested the child to imitate her nose-touching behavior in three series of twenty requests each, and that the number of times the child responded correctly was ten, twelve, and sixteen times, respectively.
>
> The percent correct response for each series would be calculated as follows: 10/20 x 100 = 50%, 12/20 x 100 = 60%, and 16/20 x 100 = 80%.

One disadvantage in relying exclusively upon percent correct as a recording method is that this method does not ordinarily contain any time reference for the behavior recorded. That is, when we give a child a test of arithmetic skills, we seldom determine the percent of problems which were solved correctly during the first minute, the second minute, and so forth. As will be shown, recording behavior in relatively small segments with respect to time will provide you with a powerful technique for understanding and changing behavior.

3.3 THE FREQUENCY METHOD

A method of recording behavior which takes time into account is the Frequency Method. The Frequency Method records the number of times a behavior occurs within specified periods of time. The most common periods of time selected are relatively short, e.g., seconds, minutes, etc.

To use the frequency method it is first necessary to select a time period and then count the number of times the behavior you are recording occurs within the time period selected. For example, you might choose to count the number of times a student leaves his seat without permission during each hour of the school day, or you might choose to count the number of words that a student writes during each minute of a fifteen minute writing assignment and so forth.

> An application of the frequency method of recording can be seen in the study described below (1). The subject of this study was a patient in an institution for the severly retarded. Most of her waking hours were spent sitting on the floor banging her forehead or back

against the wall. This behavior resulted in injuries serious enough to require daily medical treatment. In order to determine the frequency of the patient's banging behavior a mechanical recording device was designed which recorded the number of times (frequency) that she banged either her forehead or her back during each of four six-hour time periods. The results were as follows:

SIX-HOUR TIME PERIODS

1	2	3	4	TOTAL
3525	9220	13,337	9841	35,923

A program was initiated to reduce the frequency of these behaviors. The recorded frequency of banging behaviors observed during the five weeks following the initiation of the program was as follows:

WEEKS

1	2	3	4	5	TOTAL
7	2	0	1	0	10

The reduction in frequency of the patient's head and back banging behavior from a total of 35,923 times during a twenty-four hour time period to a total of 10 times during a five-week period is quite dramatic. Follow-up observations with this patient indicated that no instances of this behavior were observed in the nine-month period following the initiation of the program.

3.4 THE RATE METHOD

A third method of recording behavior is the Rate Method. The Rate Method is closely related to the frequency method. Specifically, rate is the average frequency of behavior across time.

The rate of a given behavior can be determined in two ways. First, if the frequency of a behavior has already been determined and you wish to convert the frequency to rate, it is necessary to total the frequencies determined for each time period selected and then divide the total frequency by the total time the behavior was observed.

> For example, in the case of the patient who engaged in head and back banging, it was determined that the total number of banging behaviors that occurred during the four six-hour periods was 35,923. In order to determine the rate per hour of this behavior it is necessary to divide 35,923 (the total frequency of the behavior) by 24 hours (the total time spent in observing the behavior). The result is approximately 1,496 instances of banging behavior per hour. Accordingly, the rate or average frequency of this patient's banging behavior was 1,496 times per hour.

Rate can be expressed in any time unit desired. For instance, if it were desired to express this patient's rate of banging behavior in minutes, it would be necessary to divide 35,923 by the number of minutes in a twenty-four hour period: 60 x 24 = 1440 minutes. The result is a

rate or average frequency of approximately 24 instances of banging behavior per minute.

The second method of computing rate does not require that the frequency of the behavior be determined beforehand. All that is necessary when using this method is to divide the total number of times the behavior being recorded occurs by the total length of time that the behavior was observed.

> For example, suppose that a student completed a twenty-item math test in three minutes. His rate of problem completion per minute would be determined by dividing twenty (20) problems (the total number of times the behavior occurred) by three (3) minutes (the total length of time in which the behavior was observed). The result is a rate of approximately 6.7 problems completed per minute. Similarly, we often test children with tests that have specified time limits. In this situation rate can be determined by simply dividing the number of problems completed by the amount of time allowed to complete the test, i.e., if the student completed forty (40) problems in ten minutes, his rate of problem completion per minute is forty (40) problems divided by ten (10) minutes, or four (4) problems per minute.

Both the frequency and rate method of recording behavior require that detailed records of the behavior being recorded be maintained as they occur. Mechanical devices such as counters which are worn on the

wrist are useful for this purpose, although in the classroom situation records can usually be maintained adequately with paper and pencil.

3.5 THE TIME SAMPLING METHOD

A fourth method of recording behavior, which is particularly useful in the classroom setting, is the Time Sampling Method.

The time sampling method differs from the frequency and rate methods in that it does not necessarily record each and every occurrence of the behavior being observed.

Instead, the time sampling method records whether or not a behavior is occurring at specified times within the observation period.

The steps to follow when recording behavior using the time sampling method are:

A. Establish a time period in which to observe the student and record the behavior, e.g., five minutes.

B. Sub-divide the time period selected into smaller time samples, e.g., twenty fifteen-second intervals.

C. Look at the student at the end of each fifteen-second time sample and record whether-or-not the behavior being recorded is occurring.

D. Divide the number of times the behavior being recorded occurred by the total number of time samples selected and multiply the result by 100.

For example, suppose you had observed a student's teasing behavior for a total of five minutes. During this time you recorded the number of times that teasing occurred at the end of each of the twenty fifteen-second time samples, and that the results indicated that teasing occurred ten times during the twenty time samples.

Dividing ten (the number of times teasing occurred) by twenty (the total number of time samples) an multiplying the results by 100 equals 50%.

In other words, the student was teasing during 50% of the time samples in which he was observed.

3.6 THE DURATION METHOD

A fifth method of recording behavior, which is less frequently used, is the Duration Method. Duration refers to the length of time that a behavior occurs within a specified time period, and is usually expressed as a percent of the total time period. Duration is the preferred recording method when the behavior being recorded occurs at a low frequency but persists for a long time. A classic example of this type of behavior is thumb-sucking. Usually a child will only place his thumb in his mouth a few times during the day, but when he does so, he leaves it there for a long period of time.

Duration recording requires the use of a stopwatch or at least a watch with a second hand. Generally, the length of time that a behavior is engaged in is determined with the stopwatch and then this amount of time is divided by the total length of time spent in observing the behavior.

> For example, a child was observed for a total of fifteen (15) minutes while he watched television. During this period of time he had his thumb in his mouth a total of six minutes. Dividing six minutes by fifteen (15) minutes and multiplying the result by 100 results in 40%. Accordingly, we would say that this child spent 40% of his time engaging in thumbsucking behavior while watching television.

3.7 SOME SUGGESTIONS

Learning to record behavior accurately can be difficult. The following suggestions will prove useful to you while you are learning

to record behavior. There is nothing sacred about the recording methods presented in this unit. They are intended to help you, not to interfere with your functioning as a teacher.

A. Describe as precisely as possible the behavior you are recording before you begin to record it. It is entirely possible that you and a fellow teacher might both be recording "attending" behavior in your classrooms; and yet each be recording a different behavior, depending on how each of you defined "attending" behavior. This creates no problems if your definitions of "attending" behavior are clear enough that you can see where you differ with each other.

B. Use the recording method and time period for recording behavior that makes the most sense to you for your specific situation, circumstance or purpose. Generally speaking, the shorter the time period chosen, the more accurate the recording. However, if a short time period doesn't "make sense" for the behavior you are trying to record, use a longer one.

C. Remember, unless you are using the time sampling method, to count the behavior every time it occurs, regardless of the qualitative aspects of the behavior. In short, if you are recording head-banging behavior, don't record only those head-bangs which you think are severe and ignore those which are "mild by comparison"; record all occurrences of the specified behavior.

3.8 APPLICATION

In the fictitious example below a student's reading behavior is evaluated. The specific reading behavior of concern is frequency and rate of words read. The vertical lines which appear in the paragraph indicate how many words were read each minute. Thus, the student read up to and including the word "slowly" in the first minute, and so forth.

Answer the questions following the paragraph and compare your answers with those on page 50.

Danny liked best to see the gliders from the airport. From a distance gliders look like planes, but they fly too slowly / to be planes. Gliders can go in circles like birds. One day Danny thought he saw a hawk flying / in the sky over him, but when it came closer he saw that it was a glider. The glider came / so low that he could see the pilot. He had never seen a glider so close before. /

1. What is the <u>frequency</u> of words read during each minute in the example?

2. What is the <u>rate</u> of word reading per minute in this example? (carry division to two decimal places)

3. What is the <u>rate</u> of word reading <u>per second</u> in this example? (carry division to two decimal places)

3.9 ANSWERS

1. The frequency of words read per minute is determined by counting the number of words read per minute. In this example the results were 22, 19, 20 and 17 for minutes one through four, respectively.

2. The rate or average frequency of words read per minute is determined by dividing the total number of words read by the total time required to read them. Accordingly, the rate of words read per minute in this example is equal to 78 words divided by 4 minutes, which is equal to a rate of 19.50 words read per minute.

3. To determine the rate or average frequency of words read per second in this example, it is necessary to divide the total number of words read by the total number of seconds required to read the words. Dividing 78 words by 240 seconds results in a rate of .32 words read per second.

If you missed any of these, review the appropriate section where the recording method is discussed.

3.10 UNIT REVIEW

Four methods for recording behavior were discussed:

A. The Percent Correct Method: Percent correct is determined by dividing the number of times that a behavior is performed correctly by the number of times that the behavior is attempted and multiplying the result by 100. One disadvantage in this method is the fact that it does not ordinarily include any time reference for the behavior recorded.

B. The Frequency Method: This method records the number of times that a behavior occurs within specified periods of time. The most common periods of time selected for use with this method are relatively short, e.g., seconds, minutes or hours, although longer periods of time can be used.

C. The Rate Method: Rate is the average frequency of behavior across all time periods observed. Rate can be determined in two ways:

   1. By dividing the sum of the frequencies obtained by the total time spent observing the behavior.
   2. By dividing the total number of times the behavior occurred by the total time spent observing the behavior.

D. The Time Sampling Method: This method records whether or not a behavior is occurring at specified times within the observation period. This method is particularly useful in the classroom where continuous observation of a student may be inappropriate due to other demands on the teacher's time.

E. The Duration Method: This method records the length of time that a behavior occurs within a specified time period. It is usually expressed as a percent of the total time period in which the behavior was observed. Duration is the preferred method when the

behavior being recorded occurs at a low frequency, but once it occurs, it is engaged in for a long period of time.

3.11 REFERENCES AND NOTES

(1) Hamilton, J., Stephens, L., and Allen, P. Controlling Aggressive and Destructive Behavior in Severely Retarded Institutionalized Residents. American Journal of Mental Deficiency, 1968, 852-856.

UNIT FOUR: GRAPHING BEHAVIOR

UNIT CONTENT

This unit illustrates the technique of correctly constructing a frequency graph for the purpose of displaying recorded data. Several of the more typical problems encountered when using frequency graphs are discussed, and a case study containing data which is to be converted to frequency graph form is included.

PROFICIENCY ASSESSMENT

Upon completion of this unit, you will be shown a video tape of a child engaging in a variety of self-injurious behaviors. Successful completion of this unit will require you to:

1.	Correctly record the frequency of a specified self-injurious behavior within time intervals specified and monitored by the instructor.	4
2.	Correctly construct an appropriate frequency graph to display the frequency of the specified self-injurious behavior.	6
3.	Correctly graph the frequency of the specified self-injurious behavior.	6
4.	Correctly compute the rate of the specified self-injurious behavior.	4
	Total Points	20

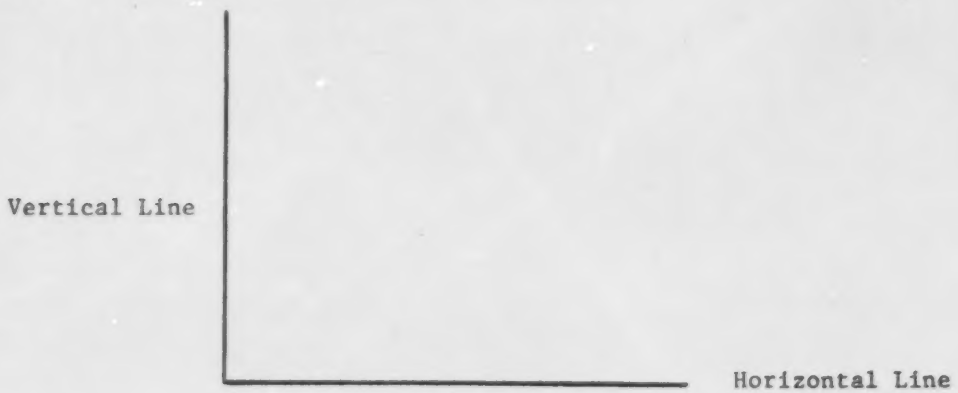
4.1 THE FREQUENCY GRAPH

Converting the data that you have recorded to graph form greatly simplifies the task of understanding what the recorded data mean. For example, suppose that you had given a student a ten-item arithmetic test each day for eight consecutive school days and that his percent correct scores were as follows:

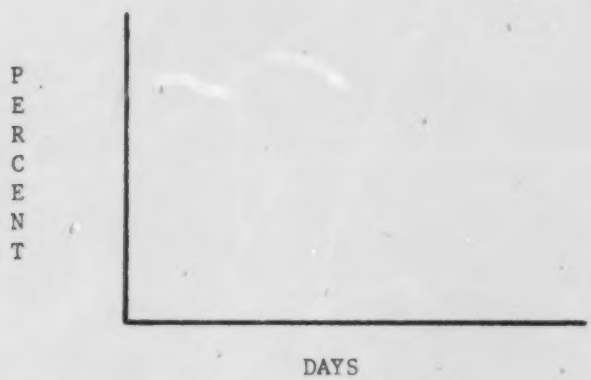
Day 1.	20%	Day 5.	30%
Day 2.	30%	Day 6.	50%
Day 3.	20%	Day 7.	50%
Day 4.	30%	Day 8.	70%

Presenting the recorded data in this form does not automatically reveal the trend in the data which would be made immediately obvious if it were presented in graph form.

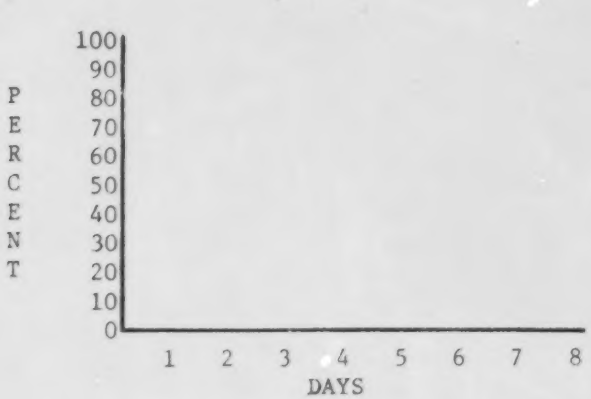
Converting recorded data to graph form, such as the frequency graph presented in this unit, is a fairly simple task. A frequency graph begins with two lines, traditionally called the ordinate and the abscissa. Since it is often difficult to remember which line should be called the ordinate and which one should be called the abscissa, we will dispense with these names and refer hereafter simply to the VERTICAL and HORIZONTAL lines of the frequency graph.



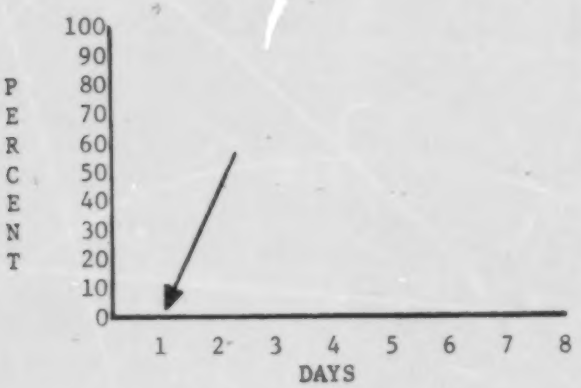
Traditionally, the vertical line is used to represent the number of times the recorded behavior occurred, whether measured in frequency, rate or percent correct. The horizontal line is used to represent the time periods over which the behavior was recorded. Appropriate labels for a frequency graph constructed to display the data in the example above would be:



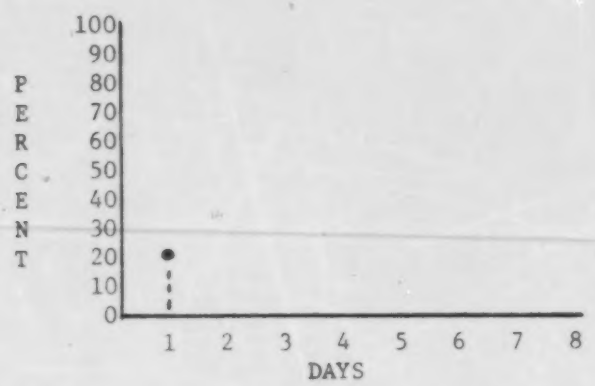
Both the horizontal and the vertical lines of the frequency graph are divided into equal intervals which represent the units in which the behavior was recorded and the time periods over which the behavior was recorded. For example, since the vertical line of this frequency graph represents percent correct, it is divided into ten equal units and numbered accordingly. Similarly, the horizontal line, which represents the time periods over which the behavior was recorded, is divided into eight equal intervals and numbered accordingly as shown:



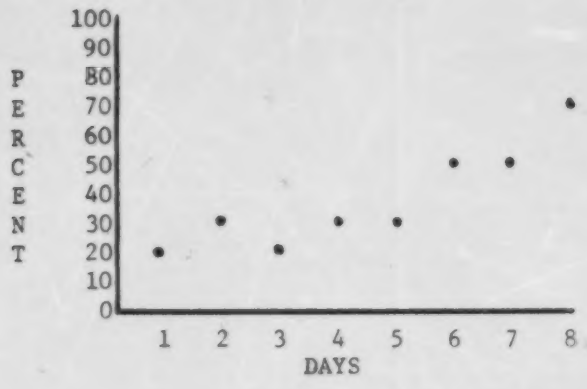
To plot the recorded data on the frequency graph, begin by locating the point on the horizontal line that represents the first time the student's behavior was recorded:



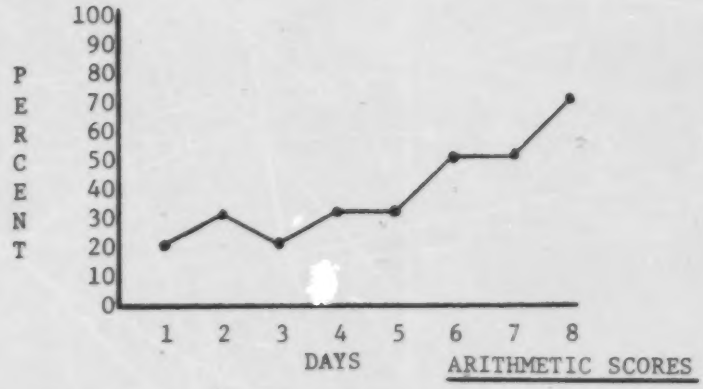
Next, move directly upward (as shown by the dotted line) from this point until you are even with the point on the vertical line which represents the percent correct score the student earned on the first test and place a dot at this point:



Next, do the same for each of the remaining test scores:



Next, connect each of the dots together with a solid line as shown below:



Finally, include a label, as shown above, identifying the behavior being graphed. Specify the behavior as precisely as possible. Additional information, e.g., student's name, dates the graph covers, etc., can be included as necessary to maintain accurate records.

4.2 SOME SUGGESTIONS

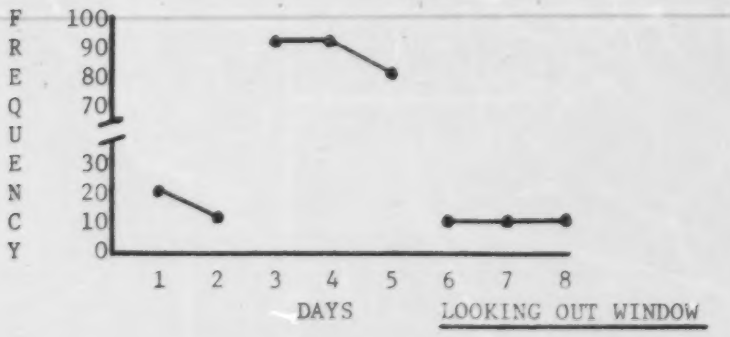
Converting recorded data to the frequency graph is, as mentioned previously, a relatively simple task. There are, however, some fairly

minor difficulties which can be dealt with by following the conventions established for the use of frequency graphs, as explained below.

A. When selecting intervals for the vertical line of your frequency graph, use only as many intervals as are necessary to plot the data you have recorded. For example, suppose that you were recording the frequency of a student's looking out the window behavior. Your records indicate that the frequency of this behavior is quite high, say from 80 to 100 times per school day for most school days, but that it also occurs at a low frequency, say from 0 to 30 times per day on other occasions.

The immediate problem is this: should you attempt to represent on the vertical line all of the possible frequencies at which the behavior could occur, or only those frequencies which represent the actual frequency of the behavior recorded?

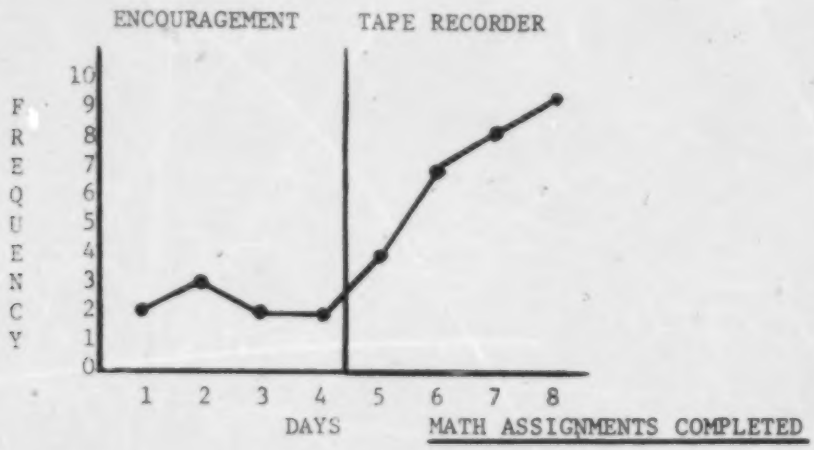
We recommend that you only include those frequencies within which the behavior was actually recorded. You can do this by modifying the vertical line of your graph as shown below:



The double-slash lines through the vertical line indicates that the intervals represented are not continuous. Note that the

intervals above and below are still of equal size.

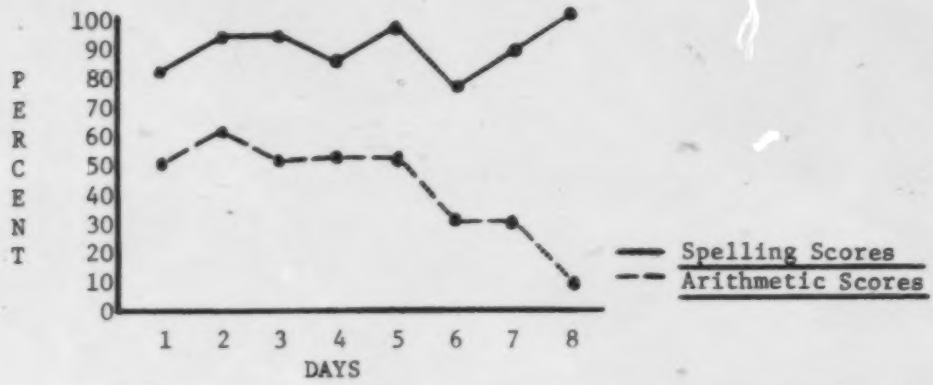
B. Changes in either the observable consequences or the conditions in which the behavior is recorded should be indicated on the graph. If the change is a deliberate one, it should be labeled and identified by drawing a vertical line to the point on the horizontal line indicating where the change began, and if appropriate, a second vertical line should be drawn to show where the change ended. For example:



This frequency graph depicts a situation where the number of math assignments completed per day by an individual student was recorded over eight consecutive school days. During days one (1) through four (4) the student was simply encouraged to complete his assignments. During days five (5) through eight (8) the student was allowed five minutes access to a tape recorder for each assignment completed. Accordingly, we would indicate on the frequency graph that a change in the consequences for completing assignments had occurred, beginning with day five (5) and ending on day eight (8) by labeling the change and drawing in the vertical lines as shown above.

Unintended changes should be indicated by making notes below the graph as necessary. For instance, if the student being observed were absent, leave the data for that day blank and make a comment below the graph to indicate his absence.

C. It is permissable to plot more than one recorded behavior on a single frequency graph, provided that each behavior plotted is capable of being easily read from the graph once plotted. When more than one behavior is plotted on a single frequency graph, it is customary to connect the dots representing the frequency of each behavior with a different type of line and also to indicate on the graph the behavior which is represented by each line. For example:



In this example the percent correct scores for two types of tests, spelling and arithmetic, are plotted across an eight class-day observation period. Note that the lines are identified in the lower right hand corner of the frequency graph.

D. Be sure that you use the same intervals on the horizontal line throughout the graph. That is, don't begin with days for the

observation period and then switch to weeks, etc., in the same graph. If you find it necessary to change observation periods for some reason, it is usually better to begin a new frequency graph.

4.3 APPLICATION

Construct a frequency graph using the data provided below. Compare your graph with the graph on page 64.

In a study reported by Karraker (1) the spelling behavior of a fifth grade boy was evaluated. The student's poor performance in spelling was in substantial contrast to his performance in other subject matter areas. His spelling behavior was measured by weekly administrations of a twenty item, teacher-constructed spelling test over a period of twenty consecutive school weeks.

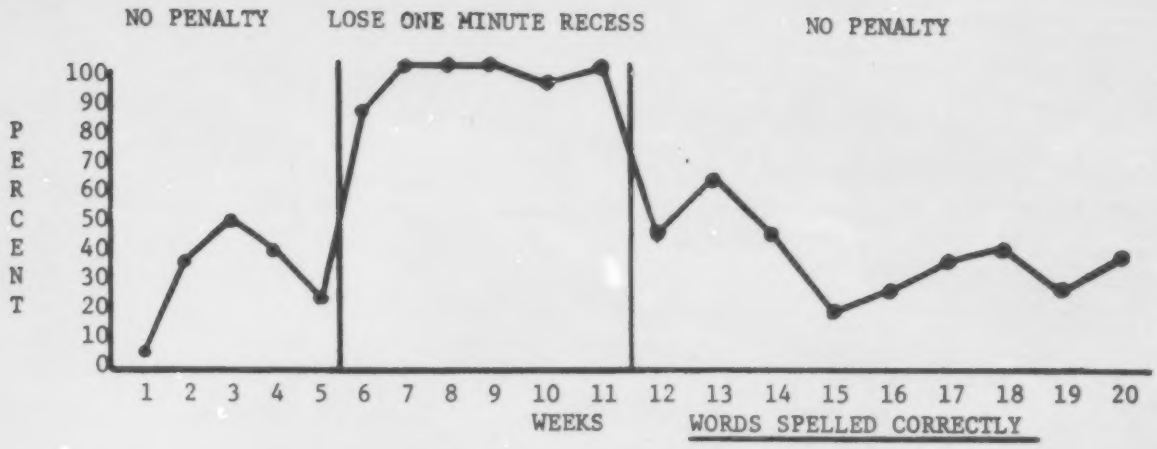
The results were as follows:

A. During weeks one (1) through five (5) the student earned percent correct scores on the spelling test of 5%, 35%, 50%, 40% and 25%. No consequence for misspelled words was provided.

B. During weeks six (6) through eleven (11) the student earned percent correct scores of 85%, 100%, 100%, 100%, 95% and 100%. During this period of time one minute of the student's afternoon recess was subtracted for each word he missed on the spelling test.

C. During weeks twelve (12) through twenty (20) the student earned percent correct scores of 45%, 65%, 45%, 15%, 25%, 35%, 40%, 25% and 35%. During this period the consequence of losing one minute for each misspelled word was removed, and as in weeks one (1) through five (5) no consequence for misspelled words was provided.

4.4 ANSWERS



The labels selected for use here are simply illustrative. You may have selected other labels which are equally appropriate. The important thing is that you remembered to include the labels.

4.5 UNIT REVIEW

The technique of converting recorded data to frequency graph form was presented and certain conventions regarding the use of the frequency graph were discussed, specifically:

A. In those situations where the observed behavior is recorded only at extreme high and low frequencies, it is appropriate to interrupt the vertical line with a double-slash and only include those frequencies at which the behavior was observed to occur.

B. Changes in either the observable consequences or conditions in which the behavior was recorded should be indicated on the frequency graph by labeling the change and through the use of vertical lines connecting with the horizontal line to indicate where the change began and, if appropriate, where it ended.

C. More than one behavior can be plotted on a single frequency graph, provided that the frequencies of all behaviors plotted can be easily read. When more than one behavior is plotted, it is customary to use different types of lines to represent each behavior and to identify which line represents each behavior on the graph.

D. The same interval must be used along the horizontal line as long as the behavior is being recorded. If it is necessary to change the observation period, a new graph should be constructed.

4.6 REFERENCES AND NOTES

(1) Karraker, R. J. Token Reinforcement Systems in Regular Public School Classrooms. In C. E. Pitts (Ed.), Operant Conditioning The Classroom. New York: Thomas Y. Crowell Company, 1971, 301-316.

When the consequence of losing one minute of recess time for each misspelled word was applied to the entire class, the effect upon the average number of words spelled correctly by the class was similar to that observed in the case study reported. Compare the average percent of words spelled correctly during each of the three time periods for the entire class and the individual case study shown below:

	WEEKS		
	1-5	6-11	12-20
Class	64	83	67
Individual	31	97	36

UNIT FIVE: ARRANGING CONSEQUENCES

UNIT CONTENT

This unit discusses the arrangement of consequences for the purpose of modifying behavior. Classes of consequences, procedures for identifying consequences, principles and schedules regarding the arrangement of consequences are discussed.

PROFICIENCY ASSESSMENT

Successful completion of this unit will require you to:

A. Provide correct written answers to twelve questions, presented in either "fill-in-the-blank" or completion format.

1.	Three which require you to read a graph and on the basis of the data on the graph, determine the type of consequence used.	3
2.	Four which will require you to identify the principles regarding the arrangement of consequences.	8
3.	Two which require you to identify the two classes of consequences.	4
4.	One which will require you to identify the three methods useful for identifying consequences for a given child.	1
5.	Two which will require you to indicate which of the two types of schedules for delivering consequences is being used.	4
	Total Points	20

5.1 INTRODUCTION

The frequency of any given behavior is effected by the consequences that immediately follow the behavior. If the consequence following the behavior is unpleasant, the frequency of the behavior will most likely decrease. If the consequence following the behavior is pleasant, the frequency of the behavior will most likely increase.

The single most important skill necessary to successfully apply the principles derived from the behavioral model is the ability to identify and correctly arrange consequences so that they will effectively modify behavior.

The ability to identify and correctly arrange consequences is also one of the most difficult skills to master, as evidenced by a study reported by Karraker (1). His study indicated that:

> Of forty-two graduate students who attempted to modify the behavior of individual students, 46% indicated that deciding upon a consequence presented them with the greatest difficulty. Deciding upon a behavior to modify was reported as a problem by 19%, while recording and graphing behavior was mentioned as a problem by only 13% of the students.

The remainder of this unit will identify three types of consequences, procedures found useful for the purpose of identifying consequences in the classroom, four principles regarding the correct arrangement of consequences for behavior and two schedules regarding the delivery of consequences.

5.2 THREE TYPES OF CONSEQUENCES

Three types of consequences can be identified:

A. Accelerating Consequences. These are consequences that result in an increase in the frequency of the behavior they follow.

B. Decelerating Consequences. These are consequences that result in a decrease in the frequency of the behavior they follow.

C. Neutral Consequences. These are consequences that have no apparent effect upon the behavior they follow.

A consequence can only be identified as an accelerating, decelerating or neutral consequence by observing its effects upon the frequency of the behavior it follows. All too often we mistakenly assume that a consequence will have a certain effect upon the frequency of a particular behavior, only to find out either that it has no effect on the behavior at all; or worse, that it has just the opposite effect.

Kothera (2) reports a study which illustrates a situation where a consequence selected to decelerate a student's disruptive behavior was shown to have no effect at all on the behavior.

> The student in this study engaged in a high frequency of disruptive behaviors in the classroom, including talking out and verbally attacking her classmates.
>
> In order to decrease or decelerate the frequency of the student's disruptive behaviors, the teacher decided to send the student to the principal's office when she engaged in any disruptive behaviors. The

teacher apparently reasoned that since most children don't seem to like being sent to the principal's office, this student wouldn't like it either, and thus the student would stop being so disruptive.

During the first fifteen consecutive class days following implementation of this consequence, the frequency of the student's disruptive behaviors ranged from a low of 30% to a high of 100% of the time she was in the classroom. This was approximately the same frequency of disruptive behaviors observed prior to the implementation of the supposed decelerating consequence. Thus, the consequence, sending the student to the principal's office, had no apparent effect upon the disruptive behavior.

Accordingly, being sent to the principal's office functioned here as a neutral rather than as a decelerating consequence for the student's disruptive behavior.

Zimmerman and Zimmerman (3) report a study which illustrates the situation where a consequence had just the opposite effect it was thought to have.

The student in this study had difficulty with spelling. As a consequence of his unsatisfactory spelling scores, the teacher began spending considerable time assisting the student with his spelling.

The teacher assumed that the consequence she provided for the student's unsatisfactory spelling behavior, in the form of additional attention, would

result in an increase or acceleration in the number of words the student spelled correctly.

However, analysis of the student's spelling scores indicated that the number of words spelled correctly actually decreased rather than increased.

Accordingly, the teacher's attention functioned here as a decelerating rather than an accelerating consequence for the student's spelling behavior. The student's spelling behavior improved dramatically when the consequence of teacher attention was made available only for words spelled correctly. In this example the consequence, teacher attention, was not changed; instead it was made available only upon the occurrence of a desirable rather than an undesirable behavior.

In both of the studies described above the selected consequences had an effect upon the frequency of the behavior that was something other than what the teacher expected. Fortunately, in both cases the unexpected effect was detected by studying the records of the frequency of the behavior both before and after the consequence was made available, and appropriate changes were made which resulted in the correction of the problem.

The implications of these studies to you as a teacher are readily obvious: <u>don't simply assume that the consequence you select will have a certain effect upon the behavior it follows; try it and see</u>. If it doesn't have the desired effect, as evidenced by your records of the frequency of the behavior before and after you begin applying the consequence, select a new consequence and begin again.

5.3 IDENTIFYING CONSEQUENCES

It is not difficult to construct a list of potential consequences. Such a list would consist of items which can be roughly grouped into two classes: consumable and non-consumable consequences.

A. Consumable Consequences. These are consequences which can be drunk or eaten; e.g., candy, gum, soda pop. Consumable consequences also consist of objects which can be exchanged for other consumable consequences; for example, tokens which can be exchanged for candy, etc.

B. Non-consumable Consequences. These consequences include activities, toys, puzzles, games, social praise, smiles, etc.

Note that we said that this is a list of potential consequences, meaning that these consequences might be used successfully to modify behavior. Remember, the only way you can tell for sure if a particular consequence will accelerate or decelerate a behavior is by trying it.

All things being equal, the choice between using a consumable or a non-consumable consequence should be based entirely upon the observable effect the consequence has upon the child's behavior. For example, if one child will work for grapes and another for free time to work on a picture puzzle, you should arrange grapes as a consequence for the first and free time as a consequence for the second.

Usually, when training is begun with a consumable consequence, it is desirable to gradually replace the consumable consequence with a non-consumable consequence. The technique of replacing the consumable consequence with a non-consumable consequence is described in detail in Unit Six.

Identifying a consequence which will decelerate or accelerate a behavior for a given child can be accomplished in the following ways:

A. Ask the Child. If the child is verbal or is capable of communicating with gestures, you can simply ask him what he likes or wants to do. A bit of subtle probing might be necessary when using this procedure since the child may be hesitant to tell you what he really likes, e.g., he may tell you that he likes something that he thinks you would want him to like.

B. Watch the Child. This procedure works equally well with both verbal and non-verbal children. It involves observing the child, usually in a free play situation, and noting the activities that he most frequently engages in when he is allowed to choose for himself. This procedure can be used with academic subjects as well, by noting the kind of subject matter the child usually chooses to work on when he is allowed to choose for himself.

C. Experimentation. If the child is non-verbal and seldom engages in any activities, you will have to experiment with several different consequences selected on the basis of your hunches about what the child will work for in order to determine an appropriate consequence.

In practice, all of these procedures are used in various combinations in the classroom setting. Additional information regarding the selection of potential consequences for a given child can also be obtained from his parents, former teachers, classmates, etc.

5.4 FOUR GENERAL PRINCIPLES

Once the consequence has been identified, you are ready to begin modifying the child's behavior. In order to maximize the probability of successfully modifying the child's behavior, the following principles regarding the arrangement of consequences must be taken into account:

A. Principle of Effect. Consequences can only be defined in terms of their effect upon the behavior. We have said this several times before, but it is worth repeating here since this principle is the one most commonly violated.

B. Principle of Immediacy. Consequences should be made available as soon as possible following the occurrence of the behavior that is being modified.

C. Principle of Consistency. Consequences must be delivered following the behavior they are intended to modify in a consistent manner.

D. Principle of Sufficiency. It is necessary to allow the student only as much access to the consequence as is required to modify the behavior, neither more nor less. Taking the consequence of free time as an example, too little access to free time will not accelerate the desired behavior, whereas too much time may result in the consequence losing its accelerating power. The appropriate amount of access for any given consequence can be determined only by experimenting directly with the child.

These principles hold in all situations where systematic attempts to modify behavior are being undertaken. Additional principles related to specific situations, e.g., attempts to decelerate versus attempts to accelerate behavior, will be discussed in later units.

5.5 SCHEDULING CONSEQUENCES

The frequency of any given behavior is also effected by the number of times its occurrence results in the delivery of the consequence. The relationship between the number of times a behavior occurs and the number of times the consequence is made available is called a schedule.

There are two major types of schedules which are of interest to the classroom teacher:

A. Constant Schedules. With this type of schedule, consequences are made available after the behavior has occurred a specific number of times, or after the behavior has been engaged in for a specific period of time.

For example, suppose you had assigned a student 50 math problems and that you were giving him tokens as a consequence. With a constant schedule, you would give him a token each time he completed a certain number, say 5, of the math problems.

Similarly, if you were providing tokens for the length of time the student worked on the problems, you would give him a token after a certain amount of time passed, say for every 2 minutes that he worked satisfactorily on the math problems.

B. Variable Schedules. With this type of schedule, consequences are made available after the behavior has occurred a variable number of times, or after the behavior has been engaged in for varying lengths of time.

For example, using this type of schedule in the situation described above, you would give the student his first token after he completed 2 problems, then the

second token after he had completed the next 6 problems, a third token after he completed the next 4 problems and so forth.

Similarly, if tokens were being provided for the length of time the student worked on the math problems, you might give him his first token after he had worked satisfactorily for 3 minutes, a second token after the next 2 minutes of satisfactory work and so forth.

Variable schedules are constructed so that the student earns approximately the same number of consequences as he would if he were receiving consequences on a constant schedule.

In practice, most behaviors are initially developed with constant schedules, with each occurrence of the behavior resulting in the delivery of the consequence, and then are maintained with variable schedules. The application of constant and variable schedules and the procedure for switching from the constant to the variable schedule is discussed in greater detail in Unit Six.

5.6 UNIT REVIEW

A. Three types of consequences were defined:

1. Accelerating Consequences. These are consequences which increase the frequency of the behavior they follow.

2. Decelerating Consequences. These are consequences which decrease the frequency of the behavior they follow.

3. Neutral Consequences. These are consequences which have no apparent effect upon the behavior they follow.

B. Two classes of consequences were defined:

1. Consumable Consequences. These are consequences which can be either eaten or drunk, e.g., candy, gum, soda pop, etc. Consumable consequences also consist of objects which can be exchanged for other consumable consequences, for example, tokens which can be exchanged for candy, etc.

2. Non-consumable Consequences. These consequences consist of activities, toys, games, social praise, etc.

C. Three procedures for identifying consequences for a given child were discussed:

1. Ask the Child. If the child is verbal or is capable of communicating with gestures, it is possible to simply ask him what he likes or wants to do.

2. Watch the Child. This procedure involves observing the child in either free play or academic settings and noticing activities he usually chooses to engage in when he is allowed to do so.

3. Experimentation. If the child does not communicate either verbally or through gestures and/or does not usually participate in any

activities, it is usually necessary to try several consequences, selected according to the teacher's hunches, in order to determine an appropriate consequence.

D. Four general principles regarding the appropriate arrangement of consequences were discussed:

1. The Principle of Effect. This principle states that a consequence can only be identified as accelerating, decelerating or neutral by observing its effects upon the frequency of the behavior it follows. This principle is most often violated, usually by assuming that a consequence either will or should have a certain effect upon behavior without finding out exactly what effect it does have.

2. The Principle of Immediacy. This principle states that consequences must be made available as soon as possible whenever the behavior they are intended to modify has occurred.

3. The Principle of Consistency. This principle states that consequences must be delivered following the behavior they intended to modify in a consistent manner.

4. The Principle of Sufficiency. This principle states that it is necessary to allow the student only as much access to the consequence as is necessary to modify the behavior it follows, neither more nor less. Too little access to the consequence may lead to the consequence failing to effect the behavior it follows, whereas too much access may cause the consequence to lose its accelerating power.

E. Two schedules regarding the delivery of consequences were described.

1. Constant Schedules. With this type of schedule, consequences are made available after the behavior has occurred a specific number of times, or after the behavior has been engaged in for a specific period of time.

2. Variable Schedules. With this type of schedule, consequences are made available after the behavior has occurred a variable number of times, or after the behavior has been engaged in for varying lengths of time.

5.7 REFERENCES AND NOTES

(1) Karraker, R. J. Token Reinforcement Systems in Regular Public School Classrooms. In C. E. Pitts (Ed.), Operant Conditioning The Classroom. New York: Thomas Y. Crowell Company, 1971, 301-316.

(2) Kothera, R. An Intervention Program to Modify Disruptive Classroom Behavior. Unpublished Manuscript, Children's Rehabilitation Unit, University of Kansas Medical Center, Kansas City, Kansas, May, 1965.

(3) Zimmerman, E. and Zimmerman, J. The Alteration of Behavior in a Special Classroom Situation. Journal of Experimental Analysis of Behavior, 1962, 59-60.

UNIT SIX: TEACHING NEW BEHAVIORS

UNIT CONTENT

This unit discusses procedures for accelerating desired behaviors in the academic, social and self-help areas. Application in each of these areas is focused on the situation where the teacher is able to work with each student individually.

Four techniques: task analysis, pairing, shaping, and fading are discussed and their use is illustrated in selected case studies.

PROFICIENCY ASSESSMENT

Successful completion of this unit will require you to:

A. Correctly define:

1. Task Analysis	4
2. Pairing	4
3. Shaping	4
4. Fading	4

B. Correctly answer two questions regarding the procedures for accelerating behavior. 4

Total Points 20

6.1 INTRODUCTION

The techniques used for accelerating behaviors are similar in application to those used for decelerating behaviors. As a matter of fact, acceleration techniques are always used in conjunction with deceleration techniques. For example, one technique (extinction) simultaneously uses attention to accelerate desired behaviors and the absence of attention to decelerate undesired behaviors.

The skills necessary to master to ensure the appropriate application of acceleration techniques can best be learned by actually using them to accelerate a desired behavior. Short of being able to actually apply the techniques at this point, let's look at a hypothetical case and outline a procedure for accelerating a desired behavior.

For the sake of illustration, assume that you have a "severely retarded" student that you want to teach to count verbally to five upon command. Suppose, also, that you knew from previous observation that the student liked sugar-coated cereal and responded well to your praise and attention.

The procedure for teaching the student this behavior would be as follows:

1. SPECIFY PRECISELY THE BEHAVIOR THAT YOU WISH TO ACCELERATE.

   The behavior that we are trying to accelerate in this case is the student's ability to verbally count to five when he is instructed to do so.

   We are not teaching him to recognize printed numbers, nor are we teaching him the ability to tell which number is the largest or smallest, nor are we teaching him the ability to identify sub-sets of numbers, e.g., three apples, two pears, etc.

2. ANALYZE THE BEHAVIOR TO BE ACCELERATED INTO ITS SMALLEST COMPONENTS.

This involves a task analysis of the behavior that is to be accelerated.

A task analysis of the desired behavior in this instance, the ability to count verbally to five when instructed to, might look like this:*

STEP 1: Student responds to teacher instruction "say 5".

STEP 2: Student responds to teacher instruction "say 4, 5".

STEP 3: Student responds to teacher instruction "say 3, 4, 5".

STEP 4: Student responds to teacher instruction "say 2, 3, 4, 5".

STEP 5: Student responds to teacher instruction "say 1, 2, 3, 4, 5".

3. IDENTIFY AN ACCELERATING CONSEQUENCE.

From the information provided above, sugar-coated cereal would probably be a good accelerating consequence to provide whenever the student engages in a desired behavior.

If a consumable consequence, such as sugar-coated cereal is selected, be sure that its delivery is always accompanied with a non-consumable consequence, such as praise. Presenting the consumable and non-consumable consequence simultaneously is called PAIRING.

*Teaching behavior backwards like this is called "backwards chaining". This procedure has proven extremely effective when used with the developmentally young.

4. IDENTIFY A DECELERATING CONSEQUENCE.

Since the student in the case study responds well to adult attention, a good decelerating consequence might be the removal of adult attention when he engages in an undesired behavior, e.g., refusing to respond, not attending to the task, etc.

One way of removing attention upon the occurrence of an undesired behavior is to simply turn away from the student when the undesired behavior occurs. If you used this technique, you would remain turned away for about five seconds, or until the student ceased engaging in the undesired behavior.

5. SPECIFY THE CONDITIONS IN WHICH THE BEHAVIOR IS TO BE TAUGHT.

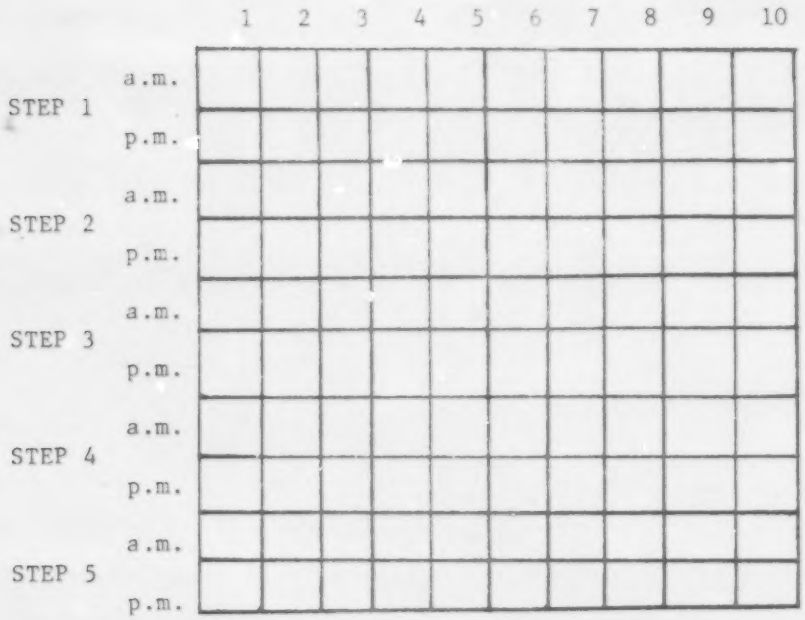
For this situation, let's assume that you intend to teach the behavior twice a day, once in the morning and once in the afternoon, while you and the student are seated alone at a small table from which all objects have been removed except for a container of sugar-coated cereal and a recording sheet.

The task is to be verbally presented to the student as indicated in the task analysis, e.g., for Step 1 you would look at the student and say, "say 5".

6. PREPARE A FORM TO RECORD THE FREQUENCY OF OCCURRENCE OF THE DESIRED BEHAVIOR.

A recording form for this study might look like the one below, where trials refer to the number of times the command is presented to the student:

NUMBER OF TRIALS



x = Student responded correctly
o = Student responded incorrectly, or didn't respond

7. SPECIFY THE NUMBER OF TRIALS TO BE ADMINISTERED DURING EACH SESSION.

For this example, let's say that we will present the command "say _____" a total of ten times during each session.

8. SPECIFY THE NUMBER OF TIMES THAT THE BEHAVIOR MUST CORRECTLY OCCUR BEFORE THE STUDENT IS ALLOWED TO MOVE TO THE NEXT STEP.

There is no hard and fast rule whereby this can be determined. For this example, let's say that we would require that eight out of ten student responses be correct before the next step is attempted.

9. SPECIFY THE MAXIMUM NUMBER OF STEPS WHICH WILL BE ADMINISTERED AT ANY ONE SESSION.

This particular behavior does not ordinarily require a lengthy time to teach, but for the sake of illustration, say that we will only teach one step per session. Accordingly,

if the student correctly responded to the command "say _____" eight out of ten times during a given session, we would terminate the session.

10. BEGIN TEACHING THE FIRST STEP SPECIFIED BY THE TASK ANALYSIS.

Teaching behavior in this manner is called behavior shaping or simply SHAPING.

11. PROVIDE ACCELERATING CONSEQUENCES(S) IMMEDIATELY UPON THE SUCCESSFUL COMPLETION OF EACH TRIAL.

When the student correctly responds to the command, immediately provide him with a piece of sugar-coated cereal and specific verbal praise, e.g., "Good, I like the way you said "_____".

If a delay occurs between the correct response and the delivery of the accelerating consequence(s), the student may begin to engage in another behavior, e.g., kicking his feet. Delivering the accelerating consequence while he is engaged in this behavior may also accelerate the foot kicking.

12. SIMILARLY, PROVIDE THE DECELERATING CONSEQUENCE IMMEDIATELY UPON THE OCCURRENCE OF ANY UNDESIRED BEHAVIOR.

As discussed previously, the decelerating consequence must be provided immediately upon every occurrence of the undesired behavior.

13. RETRAIN ALL PREVIOUSLY COMPLETED STEPS AT THE BEGINNING OF EACH SESSION.

For example, suppose that the student has progressed to the point that you are ready to begin training at Step 3.

At the beginning of the session, return to the two preceeding steps and require that the student perform each of

them correctly a specified number of times, say four out of five times, before beginning the third step.

If the student does not successfully complete the previously learned steps, begin retraining the step at which he failed, using the eight of ten correct response criteria.

14. WHEN THE DESIRED BEHAVIOR IS OCCURRING AT THE SPECIFIED LEVEL, BEGIN TO GRADUALLY REMOVE THE CONSUMABLE CONSEQUENCE.

Removing the consumable consequence is called FADING. The consumable consequence can be faded by providing it to the student less and less frequently upon the occurrence of the desired behavior, e.g., for every second occurrence of a correct response, then every third occurrence and so forth.

If at some point in the fading process the removal of the consumable consequence has a decelerating effect upon the desired behavior, reinstate it immediately.

Continue to provide the non-consumable consequence upon each occurrence of the desired behavior even though you are fading the consumable consequence. The purpose in doing this is to transfer the accelerating effect of the consumable consequence to the non-consumable consequence.

6.2 TASK ANALYSIS: ACADEMIC BEHAVIORS

Foremost among the important skills necessary to master when attempting to develop behavior is the ability to break the desired behavior down into a sequence of small, successive steps. We have called this process task analysis. Unit Two touched briefly upon task analysis, and a task analysis illustrating the steps which must be mastered in order to correctly solve arithmetic problems involving the addition of two one-digit numbers whose sum is not greater than ten was provided. 92

Most academic behaviors of interest to the teacher on the elementary level have already been task analyzed, although substantial work remains to be done in this area. Typical examples of materials constructed following task analysis procedures include the Sullivan Series (1) in reading and arithmetic and so forth.

A particularly outstanding example of materials based on task analysis procedures can be seen in the CRITERION READING (2) assessment system developed for the purpose of identifying precisely the strengths and weaknesses in a student's reading behavior. This assessment device tests each student's level of mastery in over 450 reading skills, which are arranged in a hierarchy from the simplest to the most complex.

Knight, et. al. (3) conducted a study which illustrates the use of materials which were constructed according to the task analysis procedure in that words which formed the basis of their study were selected from the Ginn word list.

The subject of their study was a five-year old "trainable" boy. It was reported that he knew the letters of the alphabet when the study began, but did not recognize any words. Training was conducted in the following manner:

> A group of ten words was selected and printed on 3" x 5" cards. Sessions were conducted twice daily, with the teacher working on a one-to-one basis with the student.
>
> STEP 1: Each word was presented to the student one at a time:
>
> A. If the student could not identify the word on the card, he was told what the word was and was required to re-

peat the word. When he did so, he was praised.

This word was then placed immediately behind the next word in the ten card set, so that he would get another chance to name the word.

B. If he correctly identified the word, it was placed at the bottom of the ten-card set.

STEP 2: This procedure was repeated until each word has been presented at least twice during each training session.

STEP 3: When the student had correctly identified the word on the card twice, the card was given to him and a new word was added to the ten-card set.

Giving the student the card and praising him when he was correct were the only accelerating consequences used with this youngster.

During a total of fifty-six sessions, each averaging nine minutes in length, the youngster was taught to identify a total of ninety-two words. The authors also reported a concomittant increase in the student's imitative skills and speech during the training program.

This training procedure has also been used with words not selected from lists constructed according to the task analysis procedure with similar results, although the rate of word learning tends to be substantially lower. The implication is fairly obvious: use materials which have been constructed according to task analysis procedures whenever possible.

6.3 TASK ANALYSIS: SOCIAL BEHAVIOR AND SELF-HELP SKILLS

Unfortunately, task analysis of behaviors other than those of an academic type, e.g., social behaviors and self-help skills, has not been as extensively undertaken, and consequently teachers are often faced with the necessity of constructing tneir own task analysis for these behaviors.

Lates, et. al. (4) reports a study which illustrates the task analysis and shaping approach to the development of a non-academic behavior. The subject of their study was a nine-year old boy who refused to participate in gym activities over the three-year period he was in school.

The desired behavior was defined as participation in the same activities as the other students in the gym class. Tokens, which could be exchanged for activities and/or desired items and social praise were selected as accelerating consequences. He was ignored whenever he failed to engage in the desired behaviors.

Since the subject usually sat in a chair some distance from the students participating in gym activities, the first step in the shaping process involved getting him to move closer to a circle on the gym floor in which most gym activities were held.

The steps followed in achieving the desired behavior are outlined below. The number of tokens which were awarded for successfully completing each step are indicated to the right of each behavior.

STEP 1	a.	Stand 6 feet from circle	20
STEP 2	a.	Stand 6 feet from circle	0
	b.	Stand 3 feet from circle	15
	c.	Stand on circle	20

STEP 3	a.	Stand 6 feet from circle	0
	b.	Stand 3 feet from circle	0
	c.	Stand on circle	20
STEP 4	a.	Stand 6 feet from circle	0
	b.	Stand 3 feet from circle	0
	c.	Stand on circle	10
	d.	Do deep knee bend	10
STEP 5	a.	Stand 6 feet from circle	0
	b.	Stand 3 feet from circle	0
	c.	Stand on circle	5
	d.	Do deep knee bend	5
	e.	Do squat thrust	10
STEP 6	a.	Stand 6 feet from circle	0
	b.	Stand 3 feet from circle	0
	c.	Stand on circle	5
	d.	Do three exercises	15

Note that the behavior required of the student before he could earn tokens was gradually increased at each step, e.g., standing six feet from the edge of the circle earned the student twenty tokens during the first step, whereas the same behavior during the second step received no tokens. Instead, in the second step, the student was required to stand three feet from the edge of the circle in order to receive fifteen tokens, or on the circle in order to receive twenty tokens.

The number of days required to complete each step, and the number of times that the student engaged in the desired behaviors were as follows:

Step	Days	Number of Days Behavior Was Exhibited
1	5	2 (40%)
2	5	5 (100%)
3	7	6 (86%)
4	5	5 (100%)
5	6	4 (67%)
6	17	8 (47%)

Upon completion of the last step, the student was given tokens only for actually participating in gym activities. The authors report that his participation in gym activities gradually increased to the point that he participated in the full gym period for twenty-four of the last twenty-eight days of the school year.

Another study reported by the same authors illustrates the technique of fading the consumable consequence. The subject of this study was a six-year old boy who seldom spoke to or played with other students.

The behavior to accelerate, interacting with other students, was defined as being near to, talking to or playing with/or near (within five feet) another student. If he did not engage in any of these behaviors, he was ignored by the teacher.

The accelerating consequence selected was tokens, in the form of milk bottle caps, which the teacher gave to the boy whenever she saw him engaging in any of the above behaviors during a thirty minute noon recess. Delivery of the token was accompanied by verbal praise, e.g., "I like the way you are playing with (other child's name). Good for you." The tokens could be exchanged for small toys and treats at a small store maintained by the school.

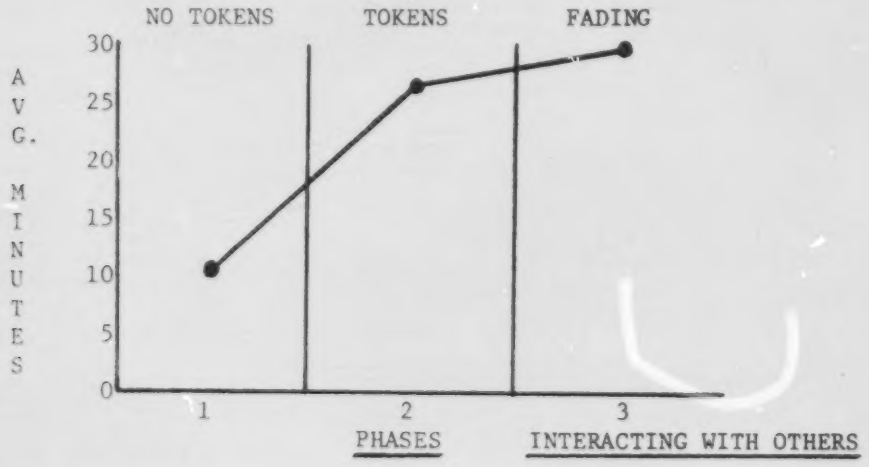
The study was carried out in the following phases:

PHASE ONE: DAYS 1-8. No tokens were given during these days. The number of minutes spent interacting, as defined above, were recorded.

PHASE TWO: DAYS 9-27. Tokens were given whenever the boy engaged in any of the defined behaviors, accompanied with social praise. The average number of tokens given per session was 9, with a low of 2 and a high of 17.

PHASE THREE: DAYS 28-36. The number of tokens given was gradually decreased, until by day 36, no tokens were given. Social praise was still provided when the student engaged in the desired behavior. The average number of tokens given per session was 8 with a low of 0 and a high of 15.

The results of the study are shown below. The data graphed is the average number of minutes spent during recess interacting with other students.



As you can see, fading out the tokens during the third phase had no decelerating effect upon the average number of minutes the boy interacted with his classmates.

Minge, et. al. (5) have conducted task analyses for several types of self-help skills, including removal of shirt or dress, removal of pants, removal of socks, putting on shirt or dress, pulling on pants and putting on socks. These skills are often lacking in the severely retarded person.

Their program for teaching a person to remove a pair of pants is as follows:

STEP 1: (Student should be seated with pants over one foot only)
Teacher puts student's hands on pants and after saying "take off the pants", helps the student pull them off.

STEP 2: Teacher points to pants and says "take off the pants".

STEP 3: (Student should be seated with pants pulled up to both knees.)
Teacher points at pants and says "take off the pants".

STEP 4: Teacher says "take off the pants".

STEP 5: (Student should be standing with pants all the way up.)
Teacher points at pants and says "take off the pants".

STEP 6: Teacher says "take off the pants".

As before, consequences are provided upon the successful completion of each step of the program. With the severely retarded, consequences usually consist of a consumable consequence (food) paired with a non-consumable consequence (praise).

Similarly, Crossen (6) reports a task analysis of a drilling machine operation which identified 100 steps to be taught. When he pre-tested the students to whom he intended to teach the task, he found that:

a) Most of the students were already capable of performing 50 or more of the steps, and

b) Only 10 of the steps required extensive training.

With this information in hand, he was able to focus his training efforts on those specific components which most required training, and substantially reduce the length of time necessary to teach students the skills necessary to successfully complete the drill press operation.

6.4 UNIT REVIEW

Procedures for teaching a student a new behavior were outlined, as follows:

1. SPECIFY PRECISELY THE BEHAVIOR THAT YOU WISH TO MODIFY.
2. ANALYZE THE BEHAVIOR TO BE ACCELERATED INTO ITS SMALLEST COMPONENTS.
3. IDENTIFY AN ACCELERATING CONSEQUENCE.
4. IDENTIFY A DECELERATING CONSEQUENCE.
5. SPECIFY THE CONDITIONS IN WHICH THE BEHAVIOR IS TO BE TAUGHT.
6. PREPARE A FORM TO RECORD THE FREQUENCY OF OCCURRENCE OF THE DESIRED BEHAVIOR.
7. SPECIFY THE NUMBER OF TRIALS TO BE ADMINISTERED DURING EACH SESSION.
8. SPECIFY THE NUMBER OF TIMES THAT THE BEHAVIOR MUST CORRECTLY OCCUR BEFORE THE STUDENT IS ALLOWED TO MOVE TO THE NEXT STEP.
9. SPECIFY THE MAXIMUM NUMBER OF STEPS WHICH WILL BE ADMINISTERED AT ANY ONE SESSION.
10. BEGIN TEACHING THE FIRST STEP SPECIFIED BY THE TASK ANALYSIS.
11. PROVIDE ACCELERATING CONSEQUENCE(S) IMMEDIATELY UPON THE SUCCESSFUL COMPLETION OF EACH TRIAL.
12. PROVIDE THE DECELERATING CONSEQUENCE IMMEDIATELY UPON THE OCCURRENCE OF ANY UNDESIRED BEHAVIOR.
13. RETRAIN ALL PREVIOUSLY COMPLETED STEPS AT THE BEGINNING OF EACH SESSION.
14. WHEN THE DESIRED BEHAVIOR IS OCCURRING AT THE SPECIFIED LEVEL, BEGIN TO GRADUALLY REMOVE THE CONSUMABLE CONSEQUENCE.

Four techniques were introduced in the above procedures:

1. TASK ANALYSIS: Task Analysis attempts to break down the desired behavior into a series of small steps, which are arranged in hierarchial fashion, and then taught in order from the easiest to the most difficult step.

   Materials developed according to task analysis procedures can be found in most academic areas of interest to the teacher. Training with materials not constructed according to task analysis procedures has been successfully done, although the rate of learning tends to be substantially lower than training conducted with materials based on task analysis procedures.

2. PAIRING: Pairing refers to the technique of providing the consumable and non-consumable accelerating consequences simultaneously to the student, e.g., when giving the student the consumable consequence, say candy, simultaneously provide verbal praise to him for the specific behavior for which he is being given the consumable consequence.

3. SHAPING: Shaping is the technique of teaching behavior according to a sequence specified by a task analysis.

4. FADING: Fading refers to the technique of gradually removing the consumable consequence. Fading is accomplished by providing the consumable consequence less and less frequently when the desired behavior occurs, e.g., begin by providing the consumable consequence for every occurrence of the desired behavior, then provide

it for every second occurrence, then every third occurrence and so forth, until the consumable consequence is no longer required.

While fading the consumable consequence, it is critical to continue providing the non-consumable consequence for each occurrence of the desired behavior. The purpose for doing this is to transfer the accelerating effect of the consumable consequence to the non-consumable consequenc.

6.5 REFERENCES AND NOTES

(1) Sullivan, M. W. The Elementary School Reading Laboratory. Palo Alto, California: Behavioral Research Laboratories, 1968.

(2) Criterion Reading, Random House, School Division, P. O. Box 460, FDR Station, New York, New York, 10022.

(3) Knight, M., Hasazi, S. and McNeil, M. A Home Based Program for the Development of Reading Skills for Preschoolers. In E. Ramp and B. Hoskins (Eds.), A New Direction for Education: Behavior Analysis 1971. Lawrence, Kansas: Department of Human Development, University of Kansas, 1971, 1, 223-233.

(4) Lates, B., Egner, A. and McKenzie, H. Behavior Modification of the Academic and Social Behavior of First Grade Children, or What Happens When Educators Turn On. In E. Ramp and B. Hoskins (Eds.), A New Direction for Education: Behavior Analysis 1971. Lawrence, Kansas: Department of Human Development, University of Kansas, 1971, 1, 191-219.

(5) Minge, M. and Ball, T. Teaching of Self-Help Skills to Profoundly Retarded Patients. American Journal of Mental Deficiency, 1967, 71, 864-868.

(6) Crossen, J. A Technique for Programming Sheltered Workshop Environments for Training Severely Retarded Workers. American Journal of Mental Deficiency, 1969, 73, 814-818.

UNIT SEVEN: CLASSROOM MANAGEMENT TECHNIQUES: I

UNIT CONTENT

This unit discusses extinction as a useful classroom technique for the purpose of accelerating and decelerating behaviors. Four characteristics of behavior undergoing modification with the extinction technique are discussed. A program outlining the necessary steps to follow when implementing an extinction program in the classroom setting is presented. Three critical skills, which must be mastered in order to insure the successful application of the extinction program in the classroom, are also discussed.

BEHAVIORAL OBJECTIVES AND PROFICIENCY ASSESSMENT

Successful completion of this unit will require you to:

A. Provide correct written answers to ten questions, presented in either "fill-in-the blank" or completion format.

1. Three of which are concerned with the definition and application of the extinction technique. 6
2. Four of which are concerned with the characteristics of behavior being modified with the extinction technique. 8
3. Three of which are concerned with the critical skills necessary to successfully use the extinction technique in the classroom. 6

Total Points 20

7.1 INTRODUCTION

Extinction is a useful technique for managing behavior in the classroom. To use the extinction technique in the classroom it is necessary to:

> REMOVE THE CONSEQUENCE WHICH USUALLY FOLLOWS AN UNDESIRED BEHAVIOR AND INSTEAD PROVIDE THE CONSEQUENCE ONLY ON THE OCCURRENCE OF A DESIRED AND USUALLY INCOMPATIBLE BEHAVIOR.

Typically, the most powerful potential consequence in the classroom is teacher attention, in the form of praise, physical contact, etc. In order to use this consequence in an extinction program it is necessary that you first realize that the undesired behaviors which occur in your classroom are probably maintained by the attention you provide them.

This being the case, it follows that you can:

A. Decelerate the frequency of undesired behaviors by ignoring them when they occur.

B. Accelerate the frequency of desired classroom behaviors by providing attention only upon their occurrence.

The extinction technique is aptly suited for use in most classroom settings since the teacher has at her immediate disposal all of the necessary materials with which to implement the program. Also, the extinction technique can be, and often is, used in conjunction with other classroom management techniques such as those introduced in Unit Eight.

7.2 CHARACTERISTICS OF BEHAVIOR UNDERGOING EXTINCTION

Inappropriate application of the extinction technique in the classroom usually leads to little more than frustration and failure. In order to avoid the problems which result from incorrect use of the technique, we will now consider four of the more important characteristics of behavior modified by the extinction technique.

A. When the undesired behavior is first ignored, a brief acceleration in its frequency will usually occur.

> For example, if you begin to consistently ignore a child's talking-out behavior, you can expect the frequency of his talking-out behavior to accelerate briefly. The frequency of his talking-out behavior will begin to decelerate provided that you provide attention for an incompatible behavior, e.g., not talking-out.

B. The rate of deceleration of the undesired behavior is sometimes relatively slow, rendering the extinction procedure unsuitable for the purpose of decelerating potentially dangerous behaviors.

> Bucher and Lovaas (1) report a study involving the use of the extinction technique for the purpose of decelerating self-injurious behavior. The subject of this study was a retarded boy whose self-injurious behaviors occurred at such a high frequency that it was necessary to keep him in physical restraints twenty-four hours a day.
>
> After removing the consequence which was thought to be maintaining the undesired behavior (attention from the

ward personnel), the boy was placed in a special room where he could not seriously injure himself.

While he was in this room, he received no attention for engaging in any self-injurious behaviors. Over a twelve-hour period the self-injurious behaviors did in fact decelerate to zero frequency, but not before the youngster had hit himself over 10,000 times.

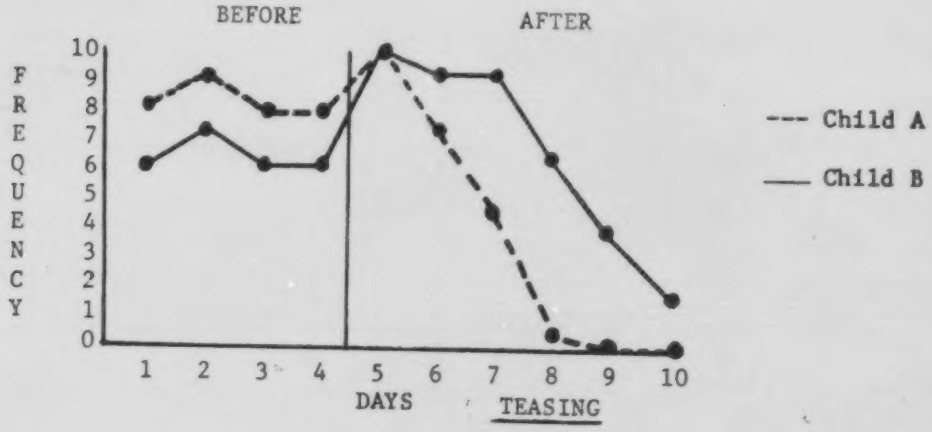
C. The rate of deceleration of an undesired behavior depends upon the extent to which the undesired behavior has resulted in receiving attention in the past. If the undesired behavior has nearly always been followed by attention in the past, the rate of deceleration will be more rapid than it will if the undesired behavior has been less frequently followed by attention.

A hypothetical example showing the relative rate of deceleration as a function of previous history is shown below. In this example, the frequency of teasing behavior for two children is shown. Child A received attention nearly every time he engaged in teasing behavior, while Child B received attention only occasionally upon engaging in teasing behavior.

Days one through four show the frequency of teasing behavior prior to the initiation of the extinction technique. Extinction involved ignoring the teasing behavior and providing attention only when the child was not engaged in teasing behavior.

Days five through ten show the frequency of the teasing behavior after the extinction technique was initiated.

Note the relatively slower rate of deceleration for Child B and the sharp acceleration in the frequency of teasing behavior which occurred for both children when the extinction procedure was initiated.*



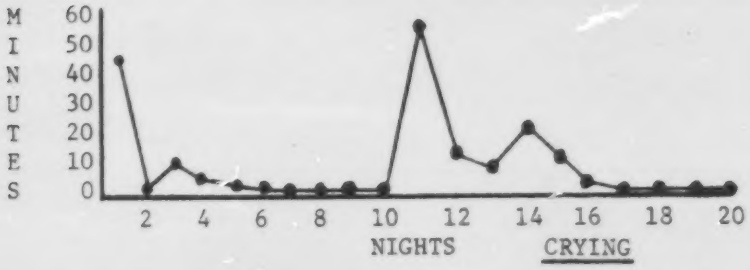
D. An undesired behavior which has been decelerated by ignoring it can be accelerated to its original frequency if attention is inadvertantly provided again following an occurrence of the undesired behavior.

Williams (2) reports a study concerned with deceleration of crying behavior in a twenty-one month old infant. When placed in bed at night, the youngster would begin crying and screaming until one of his parents came into the room and sat with him until he finally went to sleep.

An extinction program was begun by instructing the child's parents to ignore the child as long as he was

*Note also the brief acceleration which occurred for both children when the extinction process was begun.

crying. The results are shown below:



The sharp acceleration of the child's crying behavior on the eleventh night occurred when the child stayed with an aunt who had not been instructed to ignore the child when he cried. On the tenth night he cried briefly when his aunt put him to bed and she stayed with him until he went to sleep. The attention received for the crying behavior on the tenth night was sufficient to accelerate the duration of crying behavior to a higher level than was recorded before. Introducing the extinction technique for a second time decelerated the level of crying behavior to zero.

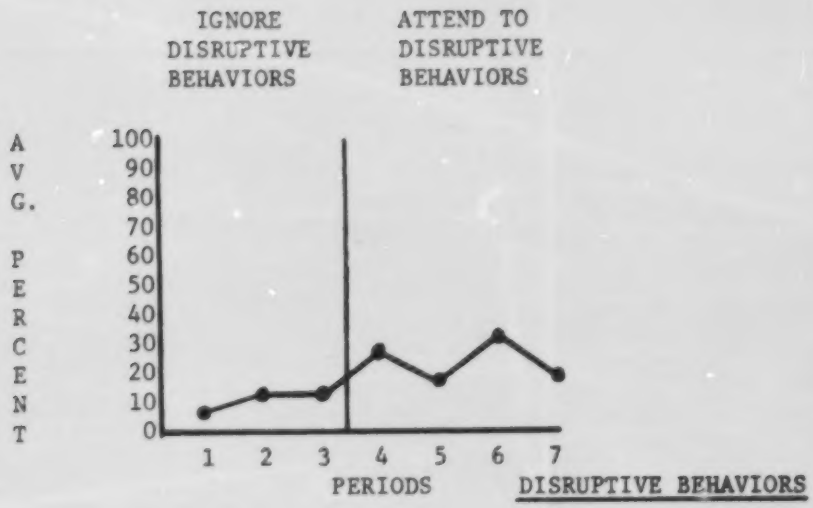
7.3 APPLICATION IN THE CLASSROOM

With these characteristics of behavior undergoing extinction in mind, let's look at a study demonstrating the application of the extinction technique in a classroom setting.

Thomas, et. al. (3) report a study which demonstrates the power of teacher attention when correctly used to accelerate and decelerate behavior.

Two classes of behavior were selected for study, appropriate and disruptive behaviors. The teacher first provided attention for appropriate behaviors and ignored disruptive behaviors. Then the consequences were reversed, that is, the teacher provided attention only for disruptive behaviors and ignored appropriate behaviors. The consequences were then reversed again, until a total of seven periods of varying number of days were completed, three in which disruptive behaviors were ignored and four in which disruptive behaviors received attention.

The graph below shows the results obtained. For ease of interpretation the three periods in which disruptive behaviors were ignored are presented consecutively, followed by the four periods in which disruptive behaviors received attention.



The average percent of time in which disruptive behaviors were recorded when the teacher ignored the disruptive behaviors (periods one through three) was about 12%. The average percent of time in which disruptive behaviors were recorded when the teacher provided attention for disruptive behaviors (periods four through seven) was about 26%.

This study demonstrates the extent to which teacher attention can be used as the consequence to accelerate or decelerate behavior in the classroom.

7.4 A CLASSROOM EXTINCTION PROGRAM

Specific steps to follow when implementing an extinction program in your classroom are provided in the following program. This is the first of several programs which will be provided throughout the remainder of this text. A program consists of a detailed description of the procedures to follow when using the program. Twenty-four programs, constructed according to the principles discussed in this unit, are included in this manual, beginning on page 145.

This program illustrates the procedures for establishing an extinction program in the classroom. Accordingly, it focuses on the class as a whole, rather than the individual student. The program emphasizes using teacher attention as the potential accelerating consequence and the lack of teacher attention as the potential decelerating consequence.

Assuming that the program is correctly used and the desired changes in behavior are not obtained, the assumption that teacher attention serves as an accelerating consequence and the absence of attention as a decelerating consequence is contradicted. Accordingly, other techniques, such as those introduced in Unit Eight, must be used.

ITEMS 2, 4C AND 5 BELOW ARE PARTICULARLY CRITICAL SKILLS WHICH YOU MUST MASTER IN ORDER TO INSURE THE SUCCESS OF THE EXTINCTION PROGRAM.

1. Prepare a list of those behaviors which occur in your classroom which you wish to accelerate and decelerate.

   During the initial stage of the program you may wish to place the list in a conspicuous place to remind yourself which behaviors are included on the list.

2. DON'T FAIL TO SELECT AT LEAST ONE BEHAVIOR TO ACCELERATE FOR EACH BEHAVIOR YOU INTEND TO DECELERATE. ATTEMPTING TO DECEL-

ERATE A BEHAVIOR WITHOUT SIMULTANEOUSLY ATTEMPTING TO ACCELERATE ANOTHER BEHAVIOR WILL USUALLY RESULT IN FAILURE.

3. Record the number of students engaging in any of the behaviors you wish to decelerate at specified time intervals.

   A. To do this it is necessary to obtain time samples of the classroom behavior. This can be done by first selecting a time interval by which to observe the entire class's behavior. For example, if you select a time sample of five minutes, you would observe the class once every five minutes and record the number of students engaging in any of the undesired behaviors listed.

   B. If your class is too large to observe entirely, split the class into sections for observation. That is, observe the front half of the class at the end of the first five-minute sample, the back half at the end of the second five-minute sample, then the front half again at the end of the third five-minute sample, and so forth.

   C. At the end of each day determine the average number of students observed engaging in inappropriate behaviors during that day. This can be done by simply summing the number of students observed engaging in inappropriate behaviors and dividing by the number of time samples used, e.g.,

Sample 1 - 5 students
Sample 2 - 10 students
Sample 3 - 3 students
Total 18 students

The average number of students engaged in inappropriate behaviors in this example would be 18 divided by 3 = 6.

D. Record the number of students engaging in inappropriate behaviors for a long enough period of time to obtain a stable estimate of this behavior; usually a week is sufficient. Graph the average number of students observed engaging in inappropriate behaviors on a frequency graph.

4. Begin the extinction program.

A. Ignore all those behaviors which you have chosen to decelerate and provide attention to those behaviors which you desire to accelerate.

B. Be prepared for a possible increase in the frequency of the undesired behaviors as soon as you begin to ignore them.

C. SINCE IT IS DIFFICULT TO REMEMBER TO PROVIDE ATTENTION FOR APPROPRIATE BEHAVIORS, YOU MAY FIND IT USEFUL TO USE A TIMING DEVICE OR WRISTWATCH TO REMIND YOURSELF TO PROVIDE ATTENTION FOR APPROPRIATE BEHAVIORS, E.G., AT SELECTED TIME INTERVALS, SAY EVERY TWO MINUTES, WALK AMONG THE STUDENTS PRAISING APPROPRIATE BEHAVIORS. USE THIS SCHEDULE UNTIL THE BEHAVIOR OF PROVIDING ATTENTION FOR APPROPRIATE BEHAVIORS IS FIRMLY ESTABLISHED.

D. Continue to record the number of students engaging in inappropriate behaviors using the same time interval as before and graph the results at the end of each day.

5. Praise behavior specifically.

DON'T SAY TO THE CHILD WHO, FOR EXAMPLE, IS READING QUIETLY "YOU'RE BEING A GOOD BOY, JOHNNY." INSTEAD SAY, "I LIKE THE

WAY YOU ARE READING, JOHNNY." ALWAYS ATTEMPT TO IDENTIFY AS PRECISELY AS POSSIBLE THE BEHAVIOR YOU ARE PROVIDING ATTENTION FOR.

6. Watch for other sources of attention which might serve to maintain the undesired behaviors.

   In the classroom situation, disruptive behaviors which are ignored by the teacher may receive attention from the other students in the class. A method of handling this problem involves praising the children who do not pay attention to the student engaging in the disruptive behavior.

7. Be consistent.

   When inappropriate behaviors are reduced to an acceptable level, you must be particularly careful not to inadvertantly provide attention should they occur again. If this happens, the inappropriate behaviors may accelerate to their original frequency and the extinction technique will have to be begun again.

7.5 APPLICATION

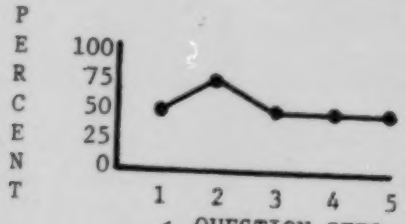
Read the following study and answer the questions following it. Compare your answers with those on page 117.

Gary is a student in a day care center for the retarded. Gary's teacher sets aside part of the school day to read the children a story, after which she asks the class questions about the story. Gary usually responds to most of the questions asked, but he does so without first raising his hand. The teacher usually reprimands him verbally for talking-out without raising his hand, but this seems to have little effect upon his talking-out behavior. Other students in the class sometimes laugh at Gary when the teacher reprimands him.

Since it appeared to the teacher that the attention she was providing Gary when he talked-out might serve as an accelerating consequence for his talking-out behavior, she decided to ignore him if he answered a question without first raising his hand and provide attention to him only when he first raised his hand.

The frequency of Gary's talking-out behavior was determined by recording the number of times he answered questions without first raising his hand for each set of four questions within a series of twenty questions. That is, the number of talk-outs were recorded for the first four questions, then the next four and so on.

The number of talk-outs within each set of four questions was converted to a percent and graphed with the following results:



TALK OUTS

Gary's teacher began using the extinction technique with Gary during the next question and answer session following story time. In order to determine the effectiveness of the extinction procedure she used another story which had twenty questions and recorded the number of talk-outs within each set of four questions as before.

QUESTIONS

1. When the teacher first begins to ignore Gary's talking-out benavior, the frequency of his talking-out behavior will most likely: ____ accelerate ____ decelerate ____ stay the same
2. If Gary has received attention nearly every time he talked-out in the past, the frequency of his talking-out behavior will decelerate (____ more rapidly, ____ less rapidly) than if he had received attention for talking-out only part of the time.
3. Assuming that Gary's talking-out behavior is decelerated to an acceptable frequency, what will probably happen to the frequency of the talking-out behavior if the teacher forgets and verbally reprimands him for talking-out? ____ accelerate ____ stay the same ____ decelerate
4. If Gary does raise his hand, how should the teacher praise him for raising his hand? _____

   _____

   _____
5. What other potential sources of attention are available to Gary for talking-out? _____

   _____

   _____

6. If it is determined that other sources of attention are present, how can this problem be handled? _____

_____

_____

7.6 UNIT REVIEW

Four important characteristics of behavior being modified by the extinction technique were discussed.

A. When the undesired behavior is first ignored, a brief acceleration in its frequency will usually occur.

B. The rate of deceleration of the undesired behavior is sometimes relatively slow, rendering the extinction procedure unsuitable for the purpose of decelerating potentially dangerous behaviors.

C. The rate of deceleration of an undesired behavior depends upon the extent to which the undesired behavior has been followed by attention in the past. If the undesired behavior has nearly always been followed by attention in the past, the rate of deceleration will be more rapid than it will if the undesired behavior has been less frequently followed by attention in the past.

D. An undesired behavior which has been decelerated by ignoring it can accelerate to its original frequency if attention is inadvertantly provided again following the occurrence of the undesired behavior.

Application of the extinction technique to the classroom setting was discussed and a program designed to facilitate the application was presented. Three particularly critical skills which must be developed in order to insure the successful application of the extinction program in the classroom were discussed:

A. It is imperative that you remember that any attempt to decelerate an undesired behavior is doomed to failure unless a desired behavior is simultaneously chosen for acceleration. Usually, a behavior which is incompatible with the undesired behavior is selected as

the behavior to accelerate. For example, if the undesired behavior is out-of-seat behavior, the desired behavior chosen for acceleration would be in-seat behavior.

B. Learning to ignore undesirable behaviors is usually not difficult. However, learning to systematically provide attention for desired behaviors is a difficult skill to master. It was suggested that the teacher learning to use the extinction technique establish a schedule by which she provides attention for all desired behaviors occurring in the classroom. This schedule should be used until the behavior of providing attention for desirable behaviors is firmly established.

C. When providing attention for a desired behavior, it is extremely important to indicate as precisely as possible the behavior which the child is being praised for, e.g., saying to a child who is reading appropriately, "you're being very good" is not as effective as saying "you're reading very nicely", etc.

7.7 REFERENCES AND NOTES

(1) Bucher, B. and Lovaas, O. I. Use of Aversive Stimulation in Behavior Modification. In M. R. Jones (Ed.), Miami Symposium on the Prediction of Behavior, 1967: Aversive Stimulation. Coral Gables, Florida: University of Miami Press, 1968, 77-145.

(2) Williams, C. D. The Elimination of Tantrum Behavior by Extinction Procedures. Journal of Abnormal and Social Psychology, 1959, 59, 269.

You may have noted that no desired behavior was selected to accelerate in this study. This was because the desired behavior was sleeping. It is difficult to imagine how to provide attention to a twenty-one month old infant, or anyone for that matter, while they are sleeping.

(3) Thomas, D. R., Becker, W. C. and Armstrong, M. Production and Elimination of Disruptive Classroom Behavior by Systematically Varying Teachers' Behavior. Journal of Applied Behavioral Analysis, Spring, 1968, 35-45.

7.8 ANSWERS

1. Accelerate
2. More rapidly
3. Accelerate
4. By specifically naming the behavior she is praising, e.g., "thanks for raising your hand, Gary."
5. The classmates who laugh at him when he is reprimanded.
6. By praising the students who do not pay attention to him when he talks out.

UNIT EIGHT: CLASSROOM MANAGEMENT TECHNIQUES: II

UNIT CONTENT

This unit discusses four additional techniques useful for the purpose of managing classroom behaviors. The techniques discussed are the Physical Punishment, Time Out, Cost Response and Self-Recording techniques. Each technique is compared with the extinction technique and the application of each technique in the classroom is outlined.

PROFICIENCY ASSESSMENT

Successful completion of this unit will require you to:

A. Provide correct written answers for eight questions, presented in either "fill-in-the-blank" or completion format.

1. One which requires the identification of the four techniques introduced in the unit. 4
2. Two which are concerned with comparing these techniques with the extinction technique. 4
3. One which concerns the consequences of incorrectly using one of the four new techniques. 2
4. Three which are concerned with (a) identifying the technique most appropriate for classroom use, (b) least appropriate, and (c) the recommended order in which the techniques should be used. 6
5. One which requires you to select an appropriate technique and briefly describe how you would use it to decelerate an undesired behavior which will be identified for you. 4

Total Points 20

8.1 INTRODUCTION

In addition to the extinction technique introduced in the previous unit, there are four additional techniques useful for the purpose of managing classroom behaviors.

These techniques all differ from the extinction technique in one important characteristic:

> THESE TECHNIQUES WILL USUALLY PRODUCE A MORE RAPID DECELERATION OF AN UNDESIRED BEHAVIOR THAN WILL THE EXTINCTION TECHNIQUE.

An important characteristic that these techniques have in common with the extinction technique is that in order to insure their successful application:

> A BEHAVIOR TO ACCELERATE MUST BE CHOSEN SIMULTANEOUSLY WITH THE BEHAVIOR THAT IS BEING DECELERATED.

8.2 ADDITIONAL CLASSROOM MANAGEMENT TECHNIQUES

The first two techniques discussed below have been used almost exclusively for the purpose of decelerating undesired behaviors, while the last two have been successfully used for the purpose of either accelerating desired behaviors or decelerating undesired behaviors.

A. The Physical Punishment Technique. This deceleration technique has little, if any, application to the classroom setting. This technique involves the use of painful physical consequences to decelerate undesired behaviors. Examples of painful physical consequences include electrical shock, slaps, and so forth.

The use of this technique is usually restricted to the situation where a child is engaging in a high rate of potentially dangerous self-injurious behaviors which must be rapidly decelerated in order to protect the child.

When used correctly, this technique results in an almost immediate deceleration of the self-injurious behaviors. Failing to simultaneously accelerate a desired behavior when decelerating the self-injurious behavior usually results in the return of the self-injurious behaviors at a later point in time.

B. The Time Out Technique. Use of this technique involves removing the child from the classroom when he engages in any undesired behaviors and placing him in a small room from which all objects with which he might play, or otherwise amuse himself have been removed.

This technique is most useful for the purpose of decelerating high rate disruptive behaviors, such as tantruming, fighting, out-of-seat and talking-out behaviors. The use of this technique alone for the purpose of accelerating desired academic behaviors is not recommended, and it is further recommended that the extinction technique and/or both of the following management techniques be used before using the time-out technique.

C. The Cost Response Technique. This technique can be used in the classroom setting for the purpose of either decelerating or accelerating behavior.

To use this technique it is necessary to arrange consequences so that the occurrence of undesired behaviors on the student's part "costs" the student something. Typically, consequences

are arranged so that the student loses a minute of recess, or some other activity, for each occurrence of the undesired behavior.

D. The Self-Recording Technique. This technique is also useful for the purpose of either accelerating or decelerating behavior in the classroom setting. Using this technique in the classroom is very simple, since it requires only that you instruct the student to keep his own record of the number of times that he engages in specified undesired behaviors. Student records are usually maintained in a simple manner, for example, you might tape a piece of paper on the student's desk and instruct him to make a mark on the paper each time he engages in an undesired behavior and so forth.

A variation of this technique involves the use of the "countoon" for the purpose of self-recording. A countoon consists of two stick figure drawings, one depicting the student engaging in a desired behavior and the other depicting the student engaging in an undesired behavior.

For example, the countoon might include one stick figure drawing of the student raising his hand before he speaks, while the other stick figure might depict him speaking without first raising his hand.

When the student raises his hand before speaking (the desired behavior), he makes a mark on the countoon showing him raising his hand before speaking. When he speaks without first raising his hand (the undesired behavior), he makes a mark on the countoon showing him speaking without first raising his hand.

When the undesired behavior has been decelerated to an acceptable level, the teacher removes the countoon from the student's desk and places it on her desk. If the undesired behavior begins to accelerate, the use of the countoon is reinstated.

8.3 APPLICATION IN THE CLASSROOM

A. THE PHYSICAL PUNISHMENT TECHNIQUE. As previously mentioned, this technique has little application to the classroom situation. Its use is limited to the situation where a child is engaged in a high rate of potentially dangerous self-injurious behaviors which must be rapidly decelerated in order to protect the child. It is sufficient that you are aware of the potential value of this technique in case you find yourself confronted with a child who engages in potentially dangerous self-injurious behaviors.

B. THE TIME-OUT TECHNIQUE. Classroom application of this technique involves removing the child from the classroom area when he engages in an undesired behavior and placing him in a small room devoid of objects with which he might play or otherwise amuse himself.

The child is usually left in the room for a relatively short period of time, usually not longer than three minutes, except in the case of a behavior such as tantruming, where the child is left in the room until he has stopped tantruming for a shorter period of time, usually one minute.

Whenever feasible, the child should be informed as precisely as possible what behavior(s) will result in his being placed in the time-out room, e.g. "Mike, if you kick Billy again, you will have to leave the room."

Similarly, when taking the child to the time-out room, you should tell him why you are placing him in the time-out room, e.g., "Mike, you just kicked Billy. Now you will have to leave the room."

Avoid lecturing or chiding the child when taking him to or releasing him from the time-out room, since this type of attention may function as an accelerating consequence for the undesired behavior which is sufficient to defeat the purpose of the time-out technique.

In most cases the child should be removed to the time-out room as quickly as possible after engaging in the undesired behavior. Further, it is critical that you make sure that he is placed in the time-out room every time he engages in the undesired behavior.

Finally, you must make sure that you also select a desirable behavior to accelerate when using this technique. That is, select a behavior which is incompatible with the behavior for which the child is placed in the time-out room and be sure to praise the child whenever he is engaging in that desired behavior, e.g., "Mike, I like the way you are playing with Billy. Thank you very much."

Selected aspects of a study reported by Ramp et. al. (1) illustrate the use of a delayed time-out technique. In this study the child was required to spend his time in the time-out room later in the day. The subject of this study was a third grade student who had reportedly been a disciplinary problem since the first grade. Several procedures had been used to decelerate his disruptive behaviors, including drugs, all to no avail.

The youngster was observed for forty-five minutes on each of eighteen consecutive school

days. These observations took place during his social studies period, which occurred at different times across the several school days.

Two disruptive behaviors were recorded: talking without permission and out-of-seat without permission. The frequency of these behaviors was recorded by observing the child for consecutive ten-second periods and noting the occurrence of either behavior within each ten second interval.

The study was carried out in the following phases:

PHASE ONE: DAYS 1-18. As indicated above the frequency of both disruptive behaviors was recorded. No consequence was provided for either behavior.

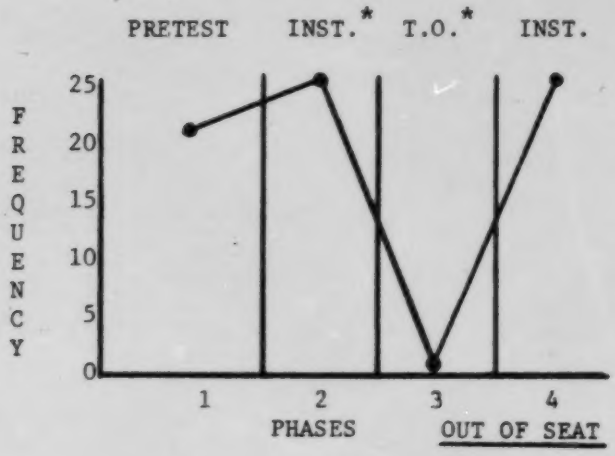
PHASE TWO: DAYS 19-26. At the start of each social studies period the teacher read the following statement to the student: "If you want to get out of your seat, or if you have something to say, please raise your hand and ask permission." No consequences were provided upon the occurrence of either behavior.

PHASE THREE: DAYS 27-49. At the start of the social studies period a small light was placed on the student's desk. He was informed that

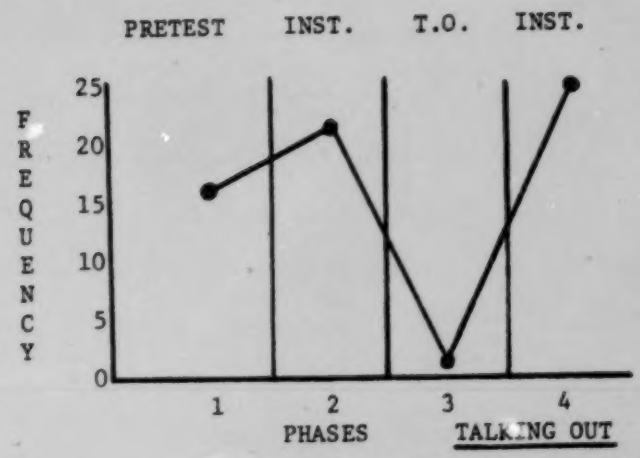
whenever he talked-out or left his seat the light would go on and that for each time the light went on he would have to spend five minutes in the time-out room during the recess period which came later in the day. The light was activated by the observor who was recording the frequency of both disruptive behaviors.

PHASE FOUR: DAYS 50-67. The use of the time-out technique was discontinued and no consequences were provided for either of the disruptive behaviors. Thus, this phase was identical to the first phase.

The results of the study are illustrated below. The data graphed represent the average number of intervals in which the student was observed to be engaging in either disruptive behavior during each phase of the study.



*INST. = INSTRUCTIONS ONLY
*T.O. = TIME-OUT



The effect of the instructions read by the teacher in phase two was a slight acceleration in the frequency of both undesired behaviors. Introducing the time-out technique in phase three resulted in a sharp deceleration in both behaviors. Removing the time-out technique in phase four resulted in an acceleration of both disruptive behaviors to a slightly higher average level than that observed in phase one.

During the entire twenty-three day period in which the time-out technique was used, the student had to spend only forty minutes in the time-out room, thirty minutes for talking without permission and ten minutes for being out-of-seat without permission.

It was reported that the teacher liked the technique so well that she intended to extend its application to all of the students in the class. Since the use of a light for each student's desk was unfeasible, she simply listed the names of all the students in her class on the board, and put a check by the name of each student who engaged

in an undesired behavior. These checks served the same function as the light in that they signaled five minutes time in the time-out room for each occurrence of the undesired behaviors.

C. THE COST RESPONSE TECHNIQUE. Use of the cost response technique in the classroom involves the arrangement of consequences so that the occurrence of undesired behaviors result in the loss of something for the student.

Two types of cost response systems can be identified. The first involves the loss of a specific amount of something, usually a desired activity such as recess, for each occurrence of an undesired behavior.

For example, Unit Four (page 63) discussed a study where a student lost one minute of recess for each word that he misspelled on a weekly spelling test. The average number of misspelled words decelerated from an average of 69% to an average of 3% incorrectly spelled, only to return to an average of 64% incorrectly spelled when the cost response technique was discontinued.

When the cost response technique was extended to include the spelling of all of the children in the class, a similar result was obtained. The class average of words incorrectly spelled decelerated from 36% to 17% when the cost response system was introduced. Removing the cost response technique resulted in an acceleration in the average number of incorrectly spelled words to 33%.

The second type of cost response system involves the arrangement of consequences so that the occurrence of an undesired behavior results in the loss of an unspecified amount of something for the student.

An example of this type of cost response could be seen if the students in the study above had been required to miss only as much recess time as was necessary for them to correct all of their misspelled words, rather than one minute for each word misspelled. For some students this might result in their losing less time and for others this might amount to losing more time than they would have with the first type of cost response system.

Selected aspects of a study reported by Salzburg, et al., (2) illustrate the use of the second type of cost response system. The subjects for this study were six children in a kindergarten class. The teacher was teaching the children to print the thirteen upper case letters (except I) which contain only straight lines. The students were required to correctly copy one upper case letter per day a total of twenty-seven times.

The study was carried out in the following phases:

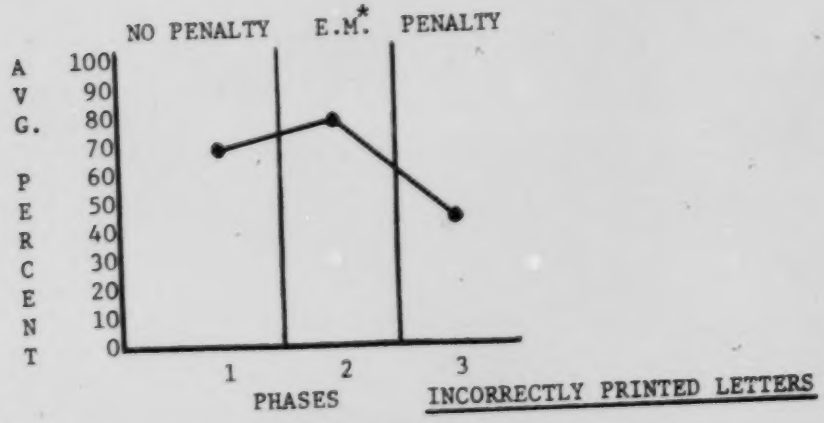
PHASE ONE: DAYS 1-19. During this phase the students handed in their papers and were immediately released for recess. The teacher made no comment to them about their work.

PHASE TWO: DAYS 20-33. During this phase the teacher pointed out the mistakes each child

made when they handed their papers in, but did not require them to correct their mistakes before going out to play.

PHASE THREE: DAYS 34-52. During this phase the student was required to print correctly a certain number of letters before he could go out and play. The number of correctly printed letters was determined for each child on the basis of his performance during the first two phases. If the child failed to print the required number of correct letters, he was required to stay in until he had correctly re-printed the letters.

The results of this study are shown below. The data graphed represent the average number of letters printed incorrectly by the entire class within each phase of the experiment.



*E.M. = TEACHER EXPLAINED ERRORS

The average number of letters printed incorrectly during the first phase was 69%. Pointing out the mistakes the students made but not requiring them to correct their mistakes resulted in a slight acceleration in the average number of letters printed incorrectly. Implementing the cost response technique in the third phase resulted in a deceleration in the average number of letters printed incorrectly to 42%.

D. THE SELF-RECORDING TECHNIQUE. As mentioned previously, this technique can be used for the purpose of either decelerating or accelerating behavior.

Implementing this technique in the classroom requires simply that the student be instructed to keep a record of his own behavior.

It is often unnecessary to implement any additional consequence other than the self-recording itself in order to accelerate or decelerate behavior, although this technique can be related to either the time-out or the cost response techniques. Used in this way, the student would be required to record the frequency of his own behavior until he had engaged in a sufficient number of the behaviors to require him to be placed in the time-out room or lose some part of a desired activity.

Selected aspects of a study reported by Broden et al. (3) illustrate the application of the self-recording behavior for the purpose of decelerating undesired behaviors.

The subject of the study was an eighth grade girl who was achieving poorly in her history class. She expressed concern about the problem, and weekly visits with the school counselor were arranged. This procedure proved to have little effect upon her achievement.

Observations of the girl in the classroom indicated that she spent most of her time engaging in non-study behavior, despite her expressed concern over her poor performance.

The study was carried out in the following phases:

PHASE ONE: DAYS 1-7. During this phase the student was observed during her history class and the percent of time she spent engaging in non-study behaviors recorded. Non-study behavior was defined as not writing lecture notes, not facing the teacher, not reciting when called on and/or not answering questions.

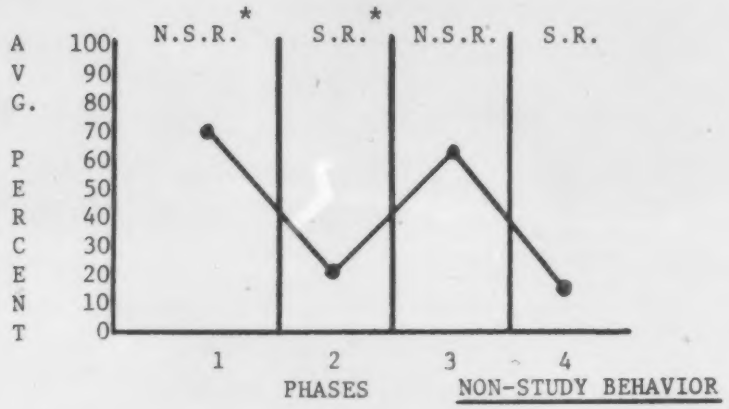
PHASE TWO: DAYS 8-13. During this phase the girl was given a slip of paper by the counselor before she went to class. She was instructed to record on the sheet (whenever she happened to think about it) whether or not she was studying. The slips were turned into the school counselor each day and were discussed at their weekly meeting, where the counselor praised her for those which

showed the highest percent of time spent in study behavior. An independent observer also recorded the student's non-study behaviors.

PHASE THREE: DAYS 14-18. The use of recording slips was discontinued. The independent observer continued to record the student's non-study behaviors.

PHASE FOUR: DAYS 19-30. The self recording technique was introduced again and the same procedure followed as in the second phase, except for days 20 and 27 when the recording slips were deliberately not made available.

The results of the study are illustrated below. The data graphed represent the average percent of time spent in non-study behavior across each phase of the study.



*N.S.R. = NO SELF-RECORDING
*S.R. = SELF-RECORDING

The self-recording technique introduced in the second phase resulted in a deceleration of non-study behavior from 70% to 22%. Removing the self-recording technique in phase three resulted in an acceleration of non-study behavior to 67%. Re-implementing the self-recording procedure in the final phase decelerated non-study behaviors to 20%.

It is of particular interest to note the effect that not providing the recording slips on days 20 and 27 had on the student's study behavior. Non-study behavior increased to 57% and 80% on these two days, respectively.

8.4 UNIT REVIEW

Four additional techniques useful for the purpose of managing classroom behaviors were discussed.

These techniques differ from the extinction technique introduced in the previous unit in that they usually lead to a more rapid deceleration of the undesired behavior than does the extinction technique.

These techniques are similar to the extinction technique in that, in order to use them successfully, a behavior to accelerate must be simultaneously selected with the behavior to decelerate.

The deceleration techniques discussed were:

A. The Physical Punishment Technique. The use of this technique is limited to the deceleration of potentially dangerous self-injurious behaviors and consequently has little, if any, application to the classroom.

B. The Time-Out Technique. The use of this technique is usually limited to the deceleration of high-rate behaviors such as tantruming, fighting and so forth. It was recommended that the extinction technique and/or either of the following management techniques be used before the time-out technique is used.

C. The Cost Response Technique. This technique can be used either for the purpose of accelerating or decelerating behaviors. Use of the technique involves the arrangement of consequences so that the occurrence of undesired behaviors "cost" the student something, usually access to a desired activity.

D. The Self-Recording Technique. This technique can also be used for the purpose of accelerating or decelerating behaviors. Use of the technique requires that the student maintain a record of

his undesired behaviors. It is possible to use this technique with no additional consequences other than the self-recording, or it can be used in conjunction with the time-out and/or response cost techniques.

8.5 REFERENCES AND NOTES

(1) Ramp, E., Ulrich, R. and Dulaney, S. Delayed Timeout as a Procedure for Reducing Disruptive Classroom Behavior: A Case Study. Journal of Applied Behavior Analysis, 1972, Vol. 3, 235-239.

(2) Salzburg, B. H., Wheeler, A. A., Devar, L. T., and Hopkins, B. L. The Effect of Intermittent Feedback and Intermittent Contingent Access to Play on Printing of Kindergarten Children. Journal of Applied Behavior Analysis, 1972, Vol. 3, 163-171.

(3) Broden, M., Hall, R. V. and Mitts, B. The Effect of Self-Recording on the Classroom Behavior of Two Eighth-Grade Students. Journal of Applied Behavior Analysis, 1972, Vol. 3, 191-199.

PART TWO: PRACTICUM OUTLINE

INTRODUCTION:

During the second part of the course, you will have the opportunity to actually put into use the techniques that you learned during the first part of the course. The instructor will indicate the exact circumstances in which you are to complete this part of the course.

The steps which are outlined on the following pages indicate the behaviors which are expected of you and the order in which they should be completed. A total of six steps are included. The sixth step represents a summary of the first five. Each requires you to demonstrate mastery of one or more of the behaviors that you learned in the first part of the course.

Each step is divided into two parts: the assignment and the report. The assignment part outlines what you are to do with your subject, and the report part indicates what information should be included in the report which is due at the completion of each step.

The techniques covered in each step are:

STEP ONE: PINPOINTING THE BEHAVIOR

STEP TWO: RECORDING AND GRAPHING THE BEHAVIOR

STEP THREE: IDENTIFYING POTENTIAL CONSEQUENCES AND PROCEDURES

STEP FOUR: ARRANGING CONSEQUENCES: I

STEP FIVE: ARRANGING CONSEQUENCES: II

STEP SIX: SUMMARY

A hypothetical case study is outlined at each step to assist you in completing this part of the course.

STEP ONE: PINPOINTING THE BEHAVIOR

ASSIGNMENT 1.

A. SELECT A SUBJECT TO WORK WITH
B. OBSERVE THE SUBJECT AS DIRECTED
C. SELECT A BEHAVIOR WHICH YOU WISH TO MODIFY

REPORT 1.

A. DESCRIBE THE SUBJECT SELECTED
B. DESCRIBE THE BEHAVIOR SELECTED

REPORT 1: EXAMPLE

A. DESCRIPTION OF SUBJECT: Johnny P. is 12 years old and is in Mrs. Smith's class for the emotionally disturbed. Johnny has been described as being "perceptually handicapped" and "hyperactive". He has no obvious physical disabilities.

B. DESCRIPTION OF THE BEHAVIOR: I observed Johnny for two hours, the first hour on the 25th and the second hour on the 27th of April. Both observations occurred during the period when the class was assigned silent reading.

The classroom consists of nine students, who sit in individual desks which are arranged in rows of three each. Mrs. Smith sits in front of the class. Johnny sits in the back row in the middle seat.

Mrs. Smith says that her major problem with Johnny concerns his inability to stay in his seat during the class's silent reading time. Silent reading assignments are made each Tuesday and Thursday at 1:00 p.m. Each assignment lasts for one hour.

Mrs. Smith begins the silent reading period by passing out the reading books and telling the students that they are to read silently to themselves during the period. She also tells them that if they need any help they are to raise their hand, and she will come to their desk and help them.

Johnny left his seat several times during both sessions. When he did so, he usually went to the window and looked outside; or he went to the back of the room where some live rabbits were kept in cages.

When he leaves his seat, Mrs. Smith reprimands him verbally, e.g., "Johnny, you know better than to leave your seat. Sit down please." The other students don't appear to pay any attention to him when he leaves his seat.

The behavior which I will attempt to modify is Johnny's "out-of-seat" behavior during the silent reading period.

STEP TWO: RECORDING AND GRAPHING THE BEHAVIOR

ASSIGNMENT 2.

A. OBSERVE SUBJECT AS DIRECTED
B. RECORD THE PER CENT, FREQUENCY, RATE, OR DURATION OF THE BEHAVIOR SELECTED FOR MODIFICATION

REPORT 2.

A. REVIEW REPORT 1 AS APPROPRIATE
B. PRESENT AND DISCUSS GRAPH SHOWING PER CENT, FREQUENCY, RATE, OR DURATION OF THE BEHAVIOR SELECTED FOR MODIFICATION. INDICATE HOW BEHAVIOR WAS RECORDED, INCLUDING RECORDING FORM IF APPROPRIATE.

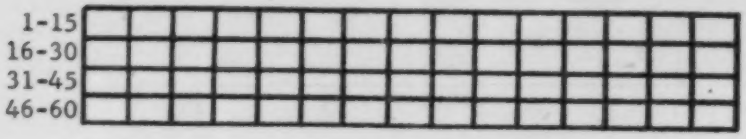
REPORT 2: EXAMPLE

A. REVIEW: Report 1 as appropriate

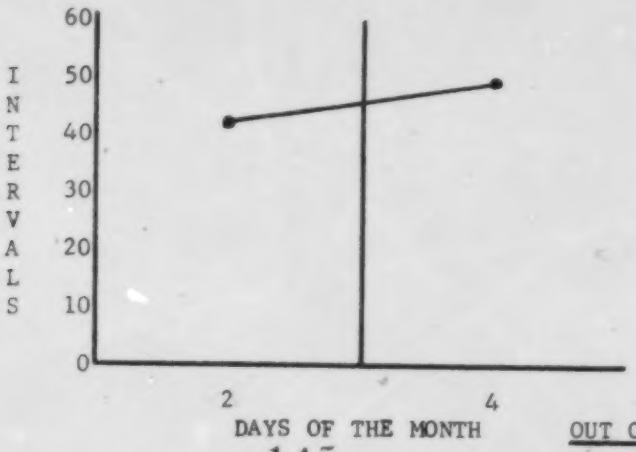
B. COMMENTS ON GRAPH: I recorded Johnny's "out-of-seat" behavior for one hour on the second and one hour on the fourth of May. Both recordings were obtained during the period Mrs. Smith's students work on silent reading assignments.

I observed Johnny for 60 consecutive one-minute intervals. At the end of each minute, I recorded whether or not Johnny was in his seat, using the recording form below.

DAY _____ MINUTES X=Johnny not in seat O=Johnny in seat



The number of intervals in which Johnny was out of his seat was 42 and 48, as shown below. In other words, Johnny was out-of-seat 70 and 80 per cent of the intervals in the two hours in which I observed him, or an average of 75 per cent of the time.



STEP THREE: IDENTIFYING POTENTIAL CONSEQUENCES AND PROCEDURES

ASSIGNMENT 3.

A. OBSERVE SUBJECT AS DIRECTED
B. IDENTIFY POTENTIAL CONSEQUENCES TO MODIFY THE BEHAVIOR
C. OUTLINE THE PROCEDURE YOU WILL USE TO MODIFY THE BEHAVIOR

REPORT 3.

A. REVIEW REPORTS 1 AND 2 AS APPROPRIATE
B. DESCRIBE THE POTENTIAL CONSEQUENCES SELECTED
C. DESCRIBE HOW POTENTIAL CONSEQUENCE WAS SELECTED
D. DESCRIBE THE PROCEDURE YOU WILL USE TO MODIFY THE BEHAVIOR

REPORT 3: EXAMPLE

A. REVIEW: Reports 1 and 2 as appropriate

B. POTENTIAL CONSEQUENCES: Additional minutes of recess time were selected as a potential consequence.

C. HOW POTENTIAL CONSEQUENCES WERE SELECTED: I observed Johnny for one hour on the 9th and one hour on the 11th of May. Observations were made during the silent-reading period. Mrs. Smith said that Johnny liked recess better than any other part of the school day. I asked Johnny if this were so, and he agreed. The recess period begins immediately after the end of the reading session.

D. PROCEDURE: For every minute during the reading session in which Johnny does not leave his seat without permission, I will give him a check-mark on a card which is taped to his desk.

The maximum number of check-marks that he can receive in one hour is 60. If he has earned 60 check-marks at the end of the hour, he will receive an extra five minutes of recess. If he has anything less than 60 check-marks, he receives no additional recess time. Extra minutes of recess are added on to the end of the regular recess period.

I have explained the procedure to Johnny, and he seems to understand. Mrs. Smith agreed to ignore Johnny whenever he left his seat while the marks were being used.

STEP FOUR: ARRANGING CONSEQUENCES: I

ASSIGNMENT 4.

A. OBSERVE SUBJECT AS DIRECTED
B. PRESENT POTENTIAL CONSEQUENCES
C. RECORD AND GRAPH BEHAVIOR FOLLOWING PRESENTATION OF POTENTIAL CONSEQUENCES

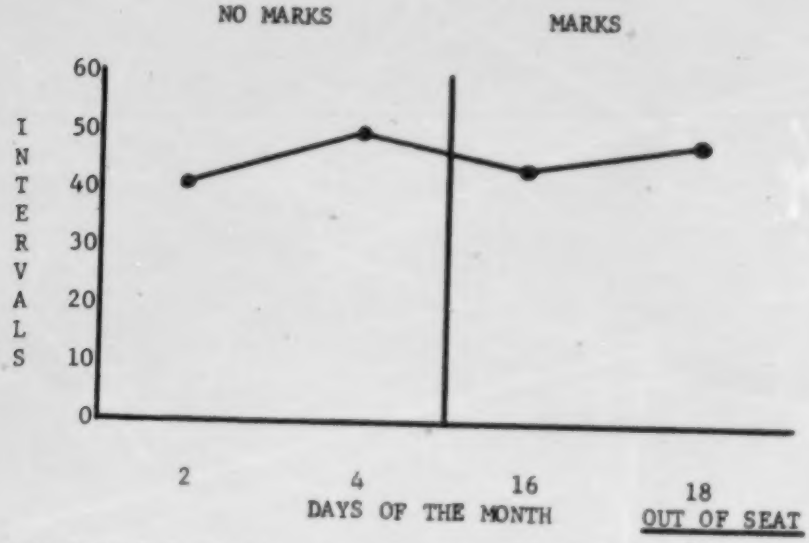
REPORT 4.

A. REVIEW REPORTS 1, 2, AND 3 AS APPROPRIATE
B. PRESENT GRAPH SHOWING THE BEHAVIOR FOLLOWING PRESENTATION OF POTENTIAL CONSEQUENCES. MAKE GRAPH CONTINUOUS WITH THAT IN REPORT 2
C. COMPARE DATA WITH THAT IN REPORT 2-B

REPORT 4: EXAMPLE

A. REVIEW: Reports 1, 2, and 3 as appropriate

B. COMMENTS ON GRAPH: The number of intervals in which Johnny was out of his seat on the 16th and 18th was 43 and 45, respectively, as shown below.



C. COMPARATIVE DATA: The per cent of intervals in which Johnny was out of his seat was 72 per cent and 75 per cent respectively, or an average of 74 per cent. This compares with his average of 75 per cent before the mark system was introduced. Compared with the number of intervals in which Johnny was out of his seat before the use of the marks as a consequence, the marks appear to have had little effect upon his "out-of-seat" behavior.

STEP FIVE: ARRANGING CONSEQUENCES: II

ASSIGNMENT 5.

A. OBSERVE SUBJECT AS DIRECTED
B. CHANGE CONSEQUENCES AND/OR PROCEDURES IF APPROPRIATE AND RECORD AND GRAPH BEHAVIOR AFTER CHANGE. OTHERWISE CONTINUE WITH ORIGINAL CONSEQUENCES AND PROCEDURES. MAKE GRAPH CONTINUOUS WITH THAT IN REPORTS 2 AND 4

REPORT 5.

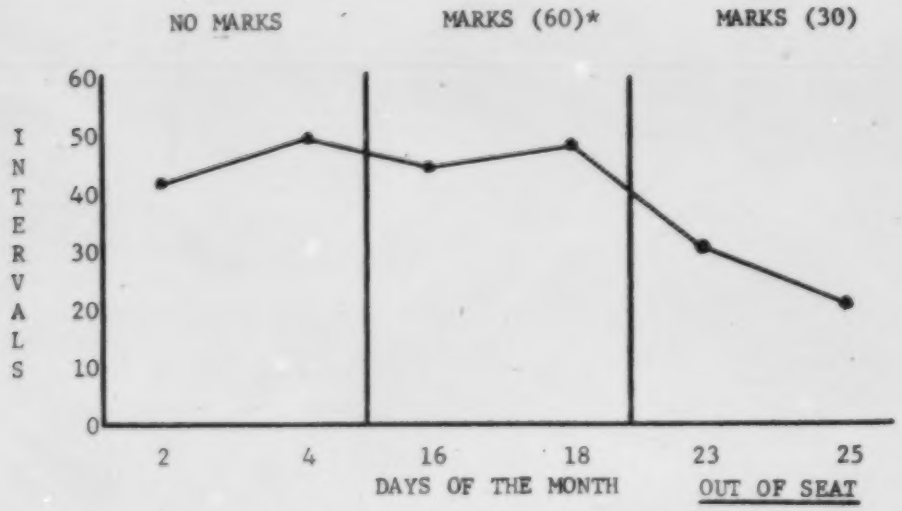
A. REVIEW REPORTS 1, 2, 3, AND 4 AS APPROPRIATE
B. DESCRIBE CHANGES MADE IN CONSEQUENCES AND/OR PROCEDURES AS APPROPRIATE
C. PRESENT GRAPH SHOWING EFFECT UPON BEHAVIOR
D. COMPARE DATA WITH THAT IN REPORT 2-B AND REPORT 4-B

REPORT 5: EXAMPLE

A. REVIEW: Reports 1, 2, 3, and 4 as appropriate

B. CHANGES: Since the marks appear to have little effect upon Johnny's "out-of-seat" behavior, the following change in procedure was made: Rather than require 60 marks for five minutes extra recess, the requirement was lowered to 30 marks. To earn 30 marks, Johnny would have to be in his seat at least 50 per cent of the time. The new procedure was explained to Johnny.

C. COMMENTS ON GRAPH: The number of intervals in which Johnny was out of his seat on the 23rd and the 25th was 28 and 21, as shown below.



D. COMPARATIVE DATA: The per cent of time Johnny was out of his seat during MARKS (30) was 47 per cent and 35 per cent respectively or an average of 41 per cent of the time. This compares favorably with his average "out-of-seat" behavior during NO MARKS of 75 per cent and MARKS (60) of 74 per cent.

*Refers to the number of marks necessary to earn five minutes extra recess.

STEP SIX: SUMMARY

ASSIGNMENT 6.

A. OBSERVE SUBJECT AS DIRECTED
B. CHANGE CONSEQUENCES AND/OR PROCEDURES IF APPROPRIATE AND RECORD AND GRAPH BEHAVIOR AFTER CHANGE. OTHERWISE, CONTINUE WITH ORIGINAL CONSEQUENCES AND PROCEDURES. MAKE GRAPH CONTINUOUS WITH THAT IN REPORTS 2, 4, AND 5

REPORT 6.

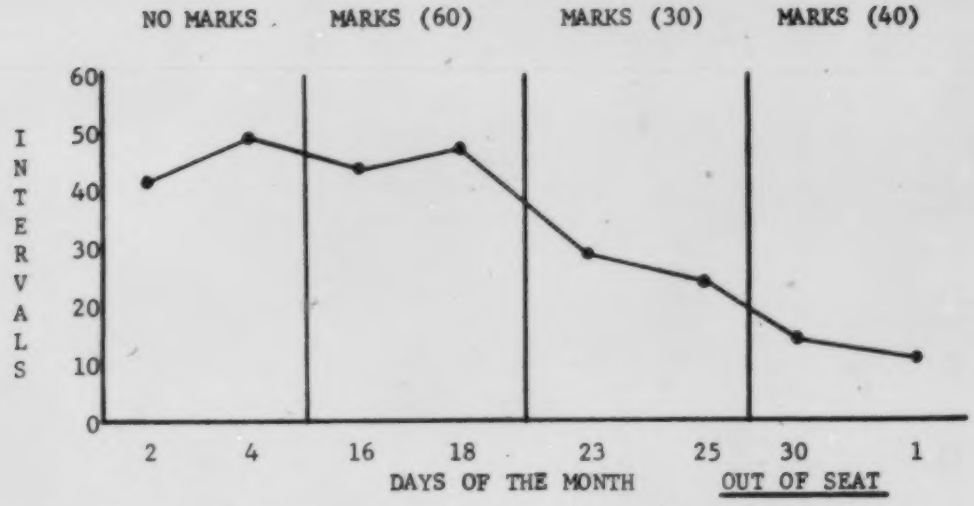
A. REVIEW REPORTS 1, 2, 3, 4, AND 5 AS APPROPRIATE
B. DESCRIBE CHANGES MADE IN CONSEQUENCES AND/OR PROCEDURES AS APPROPRIATE
C. PRESENT GRAPH SHOWING EFFECT UPON BEHAVIOR
D. COMPARE DATA WITH THAT IN REPORTS 2-B, 4-B, and 5-C

REPORT 6: EXAMPLE

A. REVIEW: Reports 1, 2, 3, 4, or 5 as appropriate

B. CHANGES: Since the MARKS (30) consequence had the desired decelerating effect upon Johnny's "out-of-seat" behavior, it was decided to gradually increase the number of marks required to earn five minutes recess. Accordingly, the number of marks required was increased to 40 per hour. The new procedure was explained to Johnny.

C. COMMENTS ON GRAPH: The number of intervals in which Johnny was out of his seat on the 30th of May and the 1st of June was 15 and 12, as shown below.



D. COMPARATIVE DATA: The per cent of intervals in which Johnny was out of his seat during MARKS (40) was 25 per cent and 20 per cent respectively, or an average of 23 per cent. The average per cent of intervals in which Johnny was out of his seat for each of the different consequences was:

NO MARKS	75 per cent	MARKS (30)	41 per cent
MARKS (60)	74 per cent	MARKS (40)	23 per cent

PART THREE: PROGRAMS

INTRODUCTION

This section contains a set of 24 programs appropriate for use with the developmentally young. Each program was developed according to the techniques outlined in PART ONE of the course.

These programs cover a variety of behaviors, ranging from self-help skills such as dressing, to academic behaviors such as counting and increasing rate and accuracy of performance in academic subjects.

Each of the programs illustrates the practical application of task analysis procedures to complex behaviors. Note that the desired behavior in each program is broken down into very small steps and in some instances is taught to the student in reverse order. That is, the final step is taught first, then the second to last step is taught next, and so forth, until the complete behavior is taught. Teaching behaviors in this fashion to the developmentally young has proven to be an extremely efficient procedure.

The question often arises concerning the applicability of a given program for all students lacking the behavior that the program is designed to teach. A good "rule of thumb" is that the program will most likely be appropriate for approximately 60 to 80 per cent of all students. For the remainder, either modification in the program will be necessary or an entirely new program will have to be developed.

Definitions of the technical terms used in these programs are provided below.

APPROXIMATION. An approximation is a behavior that is a small component of the desired behavior. For example, a two-inch movement of the foot is an approximation of a complete step, etc.

CONSEQUENCES. A consequence is that which happens immediately following a behavior. There are two types of consequences:

A. NON-CONSUMABLE CONSEQUENCES. This type of consequence includes social praise, affectionate gestures, smiles, etc.

B. CONSUMABLE CONSEQUENCES. This type of consequence includes edible items such as candy, peanuts, etc. Objects which can be exchanged for consumable consequences, e.g., money, poker chips, etc. are included in this type of consequence.

CUES. Cues are behaviors that elicit other behaviors. There are two types of cues:

A. VERBAL CUES. Examples of verbal cues include teacher statements of the form, "say this", "do this", etc.

B. PHYSICAL CUES. Examples of physical cues include situations where the teacher shows or assists the student in completing the desired behavior, e.g., the teacher guides the student's hand while he traces a letter.

FADING. Fading refers to the process of gradually removing the consequence following the desired behavior. To fade out a consequence, provide it less and less frequently upon the occurrence of the desired behavior. A good rule of thumb for fading out a consumable consequence is as follows:

STEP 1: provide consumable consequence for every occurrence of the desired behavior.

STEP 2: provide consumable consequence for every second occurrence of the desired behavior.

STEP 3: provide consumable consequence for every third occurrence of the desired behavior.

STEP 4: provide consumable consequence for every fourth occurrence of the desired behavior.

STEP 5: continue to fade the consumable consequence to the point where it is seldom required to maintain the desired behavior.

Non-consumable consequences can be faded also but should never be completely removed.

PAIRING. Refers to the process of delivering the consumable and non-consumable consequences to the student at approximately the same time.

PRETEST. Refers to the procedure for determining if the student already possesses either the complete behavior or certain of its components. No consequences are provided to the student in the pretest situation.

PROGRAMS

The first eight programs were selected and modified as appropriate from a series of programs developed by the Department of Institutions of the State of Colorado at the State Home and Training School in Wheat Ridge, Colorado.

The validity of the programs is indicated by the fact that approximately 95 per cent of the students who successfully completed the programs retained the skills taught up to two years after the completion of training.

Most of the programs are presented below without comment regarding the delivery of consequences. It is understood that consequences, whether consumable or social praise or both, are provided for successful completion of each step in the program.

1. PUTTING ON SOCKS

At each step below, give the command, "PULL UP THE SOCK". Demonstrate or assist as necessary during the first step.

STEP 1: Begin with sock on foot to within one inch of being completely on.

STEP 2: Begin with sock on foot up to ankles.

STEP 3: Begin with sock resting on heel.

STEP 4: Begin with sock on arch of foot.

STEP 5: Begin with sock over toes.

STEP 6: Begin with sock off of foot.

2. PUTTING ON SHOES

At each step below, say "PUT ON THE SHOE". Demonstrate or assist as necessary during the first steps.

STEP 1: Begin with foot in shoe, except for the heel of the foot.

STEP 2: Begin with shoe up to arch of foot.

STEP 3: Begin with shoe on only toes.

STEP 4: Begin with shoe completely off foot.

3. PUTTING ON T-SHIRT

At each step below say "PUT ON THE T-SHIRT". Demonstrate or assist as necessary during first steps.

STEP 1: Begin with t-shirt on (over the head and both arms through sleeves) to the middle of the chest.

STEP 2: Begin with t-shirt on (as above) to just under the armpits.

STEP 3: Begin with arms completely through sleeves.

STEP 4: Begin with arms through sleeves to elbows.

STEP 5: Begin with arms through sleeves to wrists.

STEP 6: Begin with t-shirt completely off.

4. PUTTING ON PANTS OR UNDERPANTS

At each step below say "PULL UP THE PANTS". Demonstrate or assist as necessary during first steps.

STEP 1: Begin with pants three inches from waist.

STEP 2: Begin with pants up to bottom of hips.

STEP 3: Begin with pants up to knees.

STEP 4: Begin with pants up to ankles.

STEP 5: Begin with pants around both feet.

STEP 6: Begin with pants completely off.

For each of these programs it is recommended that the student perform the behavior correctly 90% of the time for three consecutive sessions, before being allowed to move to the next step in the program. Ten trails are administered during each session.

It is also recommended that whenever any of these programs have been completed,

the student should be provided with the consumable consequence each day that he correctly performs the behavior, continue providing consumable consequence daily, for at least one week. After that, the consumable consequence can be provided less frequently.

5. BUTTONING CLOTHES

This program uses three sizes of buttons, Training is begun with the largest size button. Demonstration and/or assistance should be provided as necessary during the first steps.

STEP 1: a) Begin with the student holding the button between his thumb and forefinger of his right hand.

b) Make sure the student's thumb is under the outside edge of the button.

c) Say, "HOLD THE BUTTON."

STEP 2: a) Begin with the student holding the left side of his shirt between the thumb and forefinger of his left hand.

b) Make sure his forefinger is on the inside of the shirt and his thumb is holding the button hole open.

c) Say, "HOLD THE SHIRT."

STEP 3: a) Begin by having the student push one half of the button through the button hole.

b) Say, "PUSH THE BUTTON THROUGH."

STEP 4 a) Begin by having the student move the forefinger of his left hand around to grasp the button as it it comes through.

b) Say, "PULL THE BUTTON THROUGH."

STEP 5: a) Begin by having the student pull the button through with his left thumb and forefinger.

b) At the same time, have the student pull on the edge of the shirt next to the button hole with the thumb and forefinger of the right hand.

c) Say "BUTTON YOUR SHIRT".

STEP 6: Begin the program again using the next largest button.

For this program, it is recommended that the student perform the behavior correctly 90% of the time for two consecutive sessions before he is allowed to move to the next step in the program. Ten trials are administered at each session.

Once the student has successfully completed the program with the smallest button, it is recommended that he be provided with the consumable consequence each day that he correctly performs the behavior, continue providing consumable consequence daily for at least one week. After that the consumable consequence can be provided less frequently.

6. EATING WITH A SPOON

This program is designed to teach a child to eat independently with a spoon. The food the child is eating serves as a consumable consequence. Praise should be provided for each correct behavior in the program.

STEP 1: a) Begin by assisting the child in raising a spoonful of food to within three inches of his mouth.

b) After he takes a bite, assist him in returning the spoon to the plate.

STEP 2: a) Begin by assisting the child in raising the spoon of food halfway between the plate and his mouth.

b) After he takes a bite assist him in returning the spoon to the plate.

STEP 3: a) Begin by assisting the child in dipping the food with the spoon.

b) Let the student complete the motion to the mouth.

c) After he takes a bite, assist him in returning the spoon to the plate.

STEP 4: a) Begin after the child has taken a bite of food by helping him to return the spoon to within three inches of the plate.

b) Assist the child in dipping his food.

c) Begin to fade out your support for dipping food.

d) Do not assist in raising spoon to mouth.

STEP 5: a) Begin after the child has taken a bite by assisting the child in returning the spoon halfway to the plate.

b) Do not assist in dipping or raising.

STEP 6: a) After the child has taken a bite of food, touch his wrist lightly. (This is usually a sufficient cue to the child to return the spoon to the plate for more food.)

b) Gradually fade out the touch on the wrist cue.

c) Do not assist in dipping or raising spoon to the mouth.

For this program, it is recommended that the student perform the behavior correctly 90% of the time during six consecutive meals before he is allowed to move to the next step in the program. Forty trials (forty spoonfuls of food) are administered each meal or session.

If the child has difficulty in grasping the spoon, you can wrap tape around the handle of the spoon to increase its size and make it easier to hold. The tape should be gradually faded until it is completely removed and the child is using the spoon without any tape.

If the student engages in any undesired behaviors during training, the following time-out procedures are recommended:

A. The first time an undesired behavior occurs, hold the child's arms next to his side for thirty seconds.

B. The second time an undesired behavior occurs, hold the child's arms next to his side for thirty seconds as before.

C. The third time an undesired behavior occurs, remove the meal from the child for three minutes.

D. The fourth time an undesired behavior occurs, remove the child from the dining room areas, so that he misses the entire meal. This procedures is also used if the child begins to tantrum or throws his plate or food at any time during the meal.

7. WALKING

This program is useful for teaching walking behavior. In order to begin this program, the student must be capable of pulling himself upright, using either furniture or the wall for support. Demonstrate or assist the child as required during the first steps of the program. As a consequence for appropriate walking behaviors, provide the student with a consumable consequence, e.g., ice cream paired with social praise for each appropriate behavior.

STEP 1: a) Begin by requiring the student to pull up to a standing position, using the wall or furniture for support.

b) Say "STAND UP".

STEP 2: a) Begin by requiring the student to take one step towards you using the wall or furniture for support.

b) Say "STAND UP, COME HERE".

STEPS 3-6: a) Increase the number of steps with support as follows:

STEP 3: two steps

STEP 4: four steps

STEP 5: seven steps

STEP 6: ten steps

b) Begin each step by saying "STAND UP, COME HERE".

STEP 7: a) Begin by requiring the student to pull himself up with the furniture or the wall for support.

b) Require that he take one step towards you <u>without</u> support.

c) Say "STAND UP, COME HERE".

STEPS 8-11: a) Increase the number of steps <u>without support</u> required as follows:

STEP 8: two steps

STEP 9: four steps

STEP 10: seven steps

STEP 11: ten steps

b) Begin each step by saying "STAND UP, COME HERE".

For this program, it is recommended that the student perform the behavior correctly 90% of the time for three consecutive sessions before being allowed to move to the next step in the program. Ten trials are administered during each session.

Step number seven is usually the most difficult for the student to master in this program, since it requires that the student take his first step without support. Accordingly, this step may take somewhat longer than other steps and also may require more extensive shaping.

In order to shape the first independent step, you may find it useful to reduce the size of the independent step required to a very small step, e.g., one or two inches with hands removed from support for a second or so. If you find this type of shaping necessary, gradually increase the size of the independent step necessary to obtain the consumable consequence until the child is able to take a full step independent of any support.

8. NUMBERS PROGRAM: ONE TO FIVE

The first part of the program is used to teach children to count to five when instructed to do so. Additional steps for teaching the child to identify the written numbers and to count objects are also included. This program can be used with any child who does not know how to count.

The program is divided into three phases:

A. The first phase teaches the child to count to five.

STEP 1: Say to child, "SAY 5".

STEP 2: Say to child, "SAY 4,5".

STEP 3: Say to child, "SAY 3,4,5".

STEP 4: Say to child, "SAY 2,3,4,5".

STEP 5: Say to child, "SAY 1,2,3,4,5".

B. The second phase teaches the child to identify the written numbers from one to five.

STEP 1: a) Show the child a card with the number 5 printed on it.

b) Say to the child, "HERE IS FIVE, SAY FIVE."

STEP 2: a) Show the child the card with the number 5 printed on it.

b) Say to the child, "WHAT IS THIS?"

STEP 3: a) Show the child the card with the number 5 printed on it.

b) Say to the child, "WHAT IS THIS?"

c) Begin to fade out the question "WHAT IS THIS?", until the child identifies the number without the question.

STEP 4: Repeat steps 1-3 for the numbers; 4,3,2 and 1.

STEP 5: Present the numbered cards to the child in random order to determine if he knows the numbers.

Fade out the question "WHAT IS THIS?", by gradually shortening the question each time you present the card to the child, as follows:

1st presentation: you say, "WHAT IS THIS?"

2nd presentation: you say, "WHAT IS.. ."

3rd presentation: you say, "WHAT ...."

4th presentation: you say, "WH .... .."

5th presentation: silently mouth the "WH" sound.

C. The third phase of the program teaches the child to count the number of objects placed in front of him.

STEP 1: a) Place five identical objects (say oranges), in a row in front of the child.

b) Place a card with the number five on it directly above the five oranges.

c) Say to the child, "HERE ARE FIVE ORANGES. HOW MANY ORANGES ARE THERE?"

STEP 2: a) Place five oranges in a row in front of the child.

b) Place the card with the number five on it directly above the five objects.

c) Say to the child, "HOW MANY ORANGES ARE THERE?"

STEP 3: a) Place five oranges in a row in front of the child.

b) Don't show number on the card.

c) Say to the child "HOW MANY ORANGES ARE HERE?"

STEP 4: Repeat Steps 1-3 for the numbers 4,3,2 and 1.

STEP 5: a) Present objects in random order to child, e.g., two oranges, then four oranges, then one orange, etc.

b) Ask the child, "HOW MANY ORANGES ARE HERE?"

STEP 6: a) Repeat Step 5 using objects other than oranges. Don't use two different types of objects, e.g., a pencil and a ruler.

b) Ask the child, "HOW MANY _____ ARE HERE?"

The next twelve programs were developed at the Children's Behavior Therapy Unit in Salt Lake City, Utah. The Children's Behavior Therapy Unit provides services primarily for those students who, because of the severity of their behavioral difficulties, cannot be serviced by other social and educational agencies.

Each program is presented in four parts:

A. BEHAVIORAL OBJECTIVE: indicates the objective for the program.

B. TEACHING PROCEDURE: outlines the steps to follow when using the program to achieve the behavioral objective of the program.

C. CONSEQUENCES: indicates the type of consequences which are provided to the student and when and how they should be provided.

D. EVALUATION PROCEDURE: outlines the pretest and training evaluation procedures which will allow you to determine the extent to which the program is successful in achieving the behavioral objective.

Programs 14 through 16 are designed to establish appropriate sitting and attending behaviors. They should be used in the sequence presented, i.e., 14 first, 15 second, and 16 last, unless the student already exhibits the behaviors taught in the first or second programs. In this case, begin teaching with the program appropriate for the student's level of behavior.

Programs 17 through 20 are not limited in application to the developmentally young. Their use is appropriate for any level student who is experiencing behavioral difficulties in the areas the programs are designed to correct.

BEHAVIORAL OBJECTIVE	TEACHING PROCEDURE	CONSEQUENCES	EVALUATION PROCEDURE
9 TO TEACH STUDENT TO BRUSH TEETH WITHOUT THE AID OF AN ADULT.	1. MATERIALS A. Washbasin, stool, tube of toothpaste, toothbrush. 2. PROCEDURE A. Teacher places child facing washbasin. B. Teacher provides physical and verbal cues as indicated in the following steps. The physical and verbal cues are faded during each step. 1) Place student's hand (right or left depending on student) inside teacher's hand. Cue student verbally by saying, "Pick up the toothbrush." Help student pick up toothbrush. 2) With toothbrush in student's hand, say, "Wet the toothbrush." Help the student wet the toothbrush. 3) Cue student verbally by saying, "Put toothpaste on brush." With student's hands inside teacher's hands help student put toothpaste on brush and set toothpaste down.	1. SOCIAL PRAISE A. Verbal praise (e.g., good, fine, that's right) for approximations of desired behaviors. B. Verbal praise, paired with physical praise (e.g., pat on the back or head) for correct response. 2. CONSUMABLE CONSEQUENCES A. Place paper cup within vision of child. Put consumable consequences (e.g., M & M, cereal) in cup after the student achieves the objective dictated by the step. Give the student the cup of consumable consequences at termination of session. Pair the delivery of the consumable consequence with verbal and physical praise.	1. PRETEST A. Place child before wash basin with the appropriate materials within reach of the child and say, "Brush your teeth." Record correct responses in terms of the objectives in each step. Do not provide physical or verbal cues or consumable consequences. 2. TRAINING A. Graduate when child has 100 per cent at all steps for one week. Provide physical and verbal cues and consumable consequences for appropriate behaviors as specified in Teaching Procedure.

BEHAVIORAL OBJECTIVE	TEACHING PROCEDURE	CONSEQUENCES	EVALUATION PROCEDURE
9 Continued	4) Cue student verbally to put the toothbrush in his mouth by saying, "Put the toothbrush in your mouth and brush like this." Model back and forth brush strokes on both sides of mouth. 5) Cue student verbally to brush back and forth on upper back teeth (chewing surfaces) on both sides of mouth. Say, "Brush uppers back and forth," while modeling the behavior. Prompt physically if necessary, then fade prompt each session. 6) Same as step 5 with focus on upper teeth and gums (inside and out). 7) Same as step 5 with focus on lower teeth and gums (inside and out). 8) Cue child verbally to spit and rinse; model the behavior if necessary to elicit the desired response.		

BEHAVIORAL OBJECTIVE	TEACHING PROCEDURE	CONSEQUENCES	EVALUATION PROCEDURE
9 Continued	9) Same as step 2 except increase water pressure. Say, "Rinse the toothbrush." 10) Cue child verbally to put brush in cabinet.		

BEHAVIORAL OBJECTIVE	TEACHING PROCEDURE	CONSEQUENCES	EVALUATION PROCEDURE
10 TO TEACH STUDENT TO RIDE A TRICYCLE.	1. METHOD A. Teacher proceeds with student through the following steps, providing physical and verbal cues as directed. The physical and verbal cues are faded during each step. 1) Cue student verbally, "Sit on the tricycle." Physical cue is provided at the outset if necessary. Place student's hands on handle bars and left foot on left side of rear axle plate. Help child with lift onto seat. 2) With the student properly mounted, cue student verbally by saying, "Put your feet on the pedals." Cue physically if necessary. 3) With the student properly mounted and his feet properly placed, cue student verbally by saying, "Push left foot down on the pedal." Touch student's	1. SOCIAL PRAISE A. Provide social praise, e.g., good, that's right, etc. for approximations of the desired behaviors and correct responses. B. CONSUMABLE CONSEQUENCES Provide consumable consequences, e.g., candy, cereal, etc. paired with social praise for correct responses as listed under Teaching Procedure.	1. PRETEST A. Place student in area with tricycle and proceed through each step recording the percentage of correct responses during two consecutive sessions. Provide verbal cues as indicated in each step. Withhold social and consumable consequences. 2. TRAINING A. Sessions are conducted daily. Ten trials constitute a session. Eighty per cent or above for 3 consecutive sessions complete a step. Five sessions at 80 per cent or above on step 8 are required for graduation from program. Physical and verbal cues, as well as social praise and consumable consequences are provided.

BEHAVIORAL OBJECTIVE	TEACHING PROCEDURE	CONSEQUENCES	EVALUATION PROCEDURE
10 Continued	left foot. Then say, "Now push your right foot down on the pedal." Touch student's right foot. Prompt student physically if necessary (placing hand on student's ankle and pushing pedal down). This may require 2 steps with concentration on 1 leg at a time. 4) With proper response in independent foot pedaling, verbally cue student by saying, "Pedal with both feet." Provide physical prompt (placing hands on student's ankles to induce proper alternate pedaling motion). 5) With alternate pedaling established, verbally cue student, "Turn the tricycle." Provide physical cues as necessary. 6) Pedal tricycle backwards--same as step 4 except reverse the foot motion. 7) Have student proceed through 3 turns. 8) Cue student verbally to dismount tricycle.		

BEHAVIORAL OBJECTIVE	TEACHING PROCEDURE	CONSEQUENCES	EVALUATION PROCEDURE
11. TO IMPROVE WALKING POSTURE SO THAT THE STUDENT WILL WALK ERECT.	1. MATERIALS A. Two strips of tape are placed parallel to each other (about 12 inches apart) on floor. The length of strips should be from about 12 to 15 feet depending upon space available. B. Paper plate prepared so that it could be tied on child's head as a hat with outer edge up. C. Ball (i.e., ping pong ball). D. String. 2. TEACHING PROCEDURES A. Teacher demonstrates walking the length of the tape strips, keeping the ball in the paper plate on his head. Student is cued to watch chest, head, and shoulders of teacher. B. With paper plate tied on student's head, the student is positioned at the starting point between the parallel strips. Teacher cues child verbally, saying, "Walk like I did between the tape strips." Instruct child to keep his head up, chest out, and stomach in.	1. SOCIAL PRAISE A. Provide social praise for each step taken without dropping the ball. 2. CONSUMABLE CONSEQUENCES A. Provide consumable consequences, e.g., candy, juice, etc. when student completes a trial successfully. B. Pair the delivery of the consumable consequences and social praise.	1. PRETEST A. Demonstrate walking the length of tape with plate and ball on your head. B. Give student 3 sessions of 3 trials each walking length of tape. C. Record the number of steps the student takes without dropping the ball for each of the 3 sessions. D. Do not provide social praise or consumable consequences during these sessions. 2. TRAINING A. Conduct one training session per day. Each session consists of 5 trials. B. Record the number of steps the student takes without dropping the ball during each trial. C. Continue program until the student takes 10 steps without dropping the ball for 3 consecutive sessions

EHAVIORAL OBJECTIVE	TEACHING PROCEDURE	CONSEQUENCES	EVALUATION PROCEDURE
1. Continued	C. Trainer walks beside child outside of the tape strips, observes, provides appropriate social praise, and verbal cues to elicit the desired behavior.		

BEHAVIORAL OBJECTIVE	TEACHING PROCEDURE	CONSEQUENCES	EVALUATION PROCEDURE
2 TO TEACH POSITIVE RESPONSES TO THE DIRECTIONS AND COMMANDS OF WORK SUPERVISORS.	1. SETTING A. Classroom or shop with work benches or tables. 2. MATERIALS A. Tools (i.e., hammer, saw, file). B. Wood, metal, plastic, (size, quantity, type, etc. dependent on specific project to be engaged in). 3. TEACHING PROCEDURE A. Supervisor is to instruct students as indicated in the following 3 steps during the initial 5-10 minutes of an activity session. 1) When all students are seated and attentive, supervisor gives command, "Line up quietly at the tool cabinet." Supervisor provides social praise and tokens for appropriate behaviors. a) Walking quietly b) Lining up orderly 2) With students lined up at tool cabinet, supervisor commands students to (one after another) take the tools necessary for the day's activity and wait quietly until everyone has tools.	1. SOCIAL PRAISE A. Give social praise and encouragement (i.e., good, keep it up) for each appropriate behavior. 2. TOKENS A. Provide a check mark on each student's card for each behavior listed under Teaching Procedure that he correctly engages in. Pair the delivery of the check mark with social praise. B. If an individual's card has 6 checks on it at the end of a session, let him have a candy bar or a similar consequence of his own choice.	1. PRETEST A. Give the commands referred to in each step. B. Record the frequency of inappropriate behaviors in each step for each student for 2 consecutive activity sessions. C. Do not provide social praise or check marks during these sessions. 2. TRAINING A. Sessions are conducted daily. A session is composed of the 3 steps as outlined in Teaching Procedure. B. Provide social praise and check marks for only those behaviors listed under step 1 until all students are engaging in these behaviors 90 per cent or more of the time. Then proceed to the behaviors listed under steps 2 and 3.

BEHAVIORAL OBJECTIVE	TEACHING PROCEDURE	CONSEQUENCES	EVALUATION PROCEDURE
12. Continued		Supervisor provides social praise and tokens for appropriate behaviors. a) Selecting proper tools. b) Waiting quietly. 3) After students have obtained their tools and are waiting quietly, supervisor gives command, "Return (walk) to your tables (or work benches), set your tools down, and wait quietly for further instruction." Supervisor provides social praise and tokens for appropriate behaviors. a) Returning quickly to table. b) Setting tools down. c) Waiting quietly.	
	B. Similar procedures can be followed during the last 5-10 minutes of an activity period.		

BEHAVIORAL OBJECTIVE	TEACHING PROCEDURE	CONSEQUENCES	EVALUATION PROCEDURE
13. TO TEACH STUDENT THE SKILLS INVOLVED IN SWEEPING A FLOOR WITH A KITCHEN (CORN) BROOM.	1. SETTING A. Room devoid of furniture and obstructions to floor sweeping. B. Furniture items which are to be added gradually to floor area. 2. TEACHING PROCEDURE A. Teacher proceeds with student, providing physical prompts, verbal cues, and tokens as indicated in the following steps: 1) Teacher models proper broom grasp, then cues student verbally, "Hold the broom like this." Physical cue is provided by teacher i.e., position subjects hands properly on broom. Student is provided with social praise and a token for holding the broom properly. 2) When broom is grasped properly, teacher models the sweeping motion running broom across small amount of debris on floor, then cues subject verbally, "Sweep the floor like this."	1. SOCIAL CONSEQUENCES A. Give social praise and encouragement (e.g., good/that's right) for approximations of the correct response. 2. TOKENS A. Give subject a token after successful completion of a trial in the beginning of program. B. As the program progresses, fade tokens until they are provided only after 8 to 10 successful trials. 3. OTHER CONSEQUENCES A. At the beginning of the training program, require a minimum of 5 tokens to obtain another consequence, e.g., free time, etc. B. Gradually increase the number of tokens required to obtain additional consequences throughout the training sequence.	1. PRETEST A. Place student in room with broom and proceed through each step recording the percentage of correct responses. B. Provide the verbal and physical cues as indicated. Do not provide social praise or consumable consequences. 2. TRAINING A. Sessions are conducted daily. Ten trials constitute a session. Ninety per cent success or higher for 2 consecutive days completes a step. Physical and verbal cues, social praise, and tokens are provided.

BEHAVIORAL OBJECTIVE	TEACHING PROCEDURE	CONSEQUENCES	EVALUATION PROCEDURE
13. Continued	Physical cue is provided by teacher. Student is provided with social praise and a token for proper sweeping motions. 3) Small area of room is marked off, and student is trained to sweep area clean; size of area is increased as student attains skills. 4) Furniture is added, and student is trained to sweep around obstacles.		

BEHAVIORAL OBJECTIVE	TEACHING PROCEDURE	CONSEQUENCES	EVALUATION PROCEDURE
14 TO ESTABLISH APPROPRIATE SITTING BEHAVIOR. GOAL: TWO MINUTES SITTING TIME	1. Take student to chair and say, "Sit down", (cue physically, if necessary). Provide social praise and consumable consequence immediately when he sits down. 2. Provide social praise and consumable consequence to the student for sitting appropriately 5 seconds longer than his average sitting time--as determined in the pretest. Gradually increase to 10 seconds, 20 seconds, etc. 3. If student gets up from seat before session is ended, repeat step one. After returning him to seat three times in a row before reaching the desired time sitting, leave the student alone in the room for 1 minute, and then return to the room and begin again.	1. SOCIAL CONSEQUENCES A. Provide social praise for appropriate sitting behavior. 2. CONSUMABLE CONSEQUENCES A. Provide a consumable consequence, e.g., candy, etc. for appropriate sitting behavior. B. Pair the delivery of the consumable and social consequences.	1. PRETEST A. Record for 3 days prior to use of this program the average length of time the student sits appropriately in the chair, after being given the command, "sit down". B. Do not provide social praise or consumable consequences during this 3-day period. 2. TRAINING A. Sessions are conducted daily. Five trials, initiated with the command, "sit down", constitute a session. B. Terminate training when student sits appropriately for two minutes following the command, "sit down", on 5 consecutive days.

BEHAVIORAL OBJECTIVE	TEACHING PROCEDURE	CONSEQUENCES	EVALUATION PROCEDURE
15 TO TEACH STUDENT TO MAINTAIN EYE-TO-EYE CONTACT WITH THE TEACHER.	1. SETTING A. Small room devoid of distracting stimuli. B. Student is seated across small table from teacher. 2. PROCEDURE A. Teacher holds a consumable consequence by her eyes. B. Teacher says to the student, "Look at me." C. Teacher gives consumable consequence to student if he obeys within 3 seconds. D. Teacher repeats instruction if child fails to obey. E. After 10 repetitions of the command, "Look at me," terminate the session.	1. SOCIAL PRAISE A. Provide praise for the desired response and, as necessary, for approximations to the desired response. 2. CONSUMABLE CONSEQUENCES A. Provide a consumable consequence, e.g., candy, juice, etc. for the desired response and, as necessary, for approximations to the desired response.	1. PRETEST A. Say to the student, "Look at me." B. Do not provide social praise or consumable consequences. C. Record the number of times the student responds correctly to 10 repetitions of the command, "Look at me," given on 3 consecutive days. 2. TRAINING A. Give the student the command, "Look at me," 10 times. B. Provide social praise and consumable consequences for correct responses and, as necessary, for approximations to the desired response.

BEHAVIORAL OBJECTIVE	TEACHING PROCEDURE	CONSEQUENCES	EVALUATION PROCEDURE
16. TO TEACH STUDENT TO MAINTAIN PROPER SITTING BEHAVIOR WHILE MANIPULATING OBJECTS. GOAL: 2 MINUTES SITTING TIME.	1. SETTING A. Small room devoid of distracting stimuli. B. Student is seated across the table from teacher. 2. PROCEDURE A. Teacher gives student one object, e.g., block, toy, etc. to play with. B. At the end of each 30 seconds of correct sitting behavior, teacher provides student with an additional object. C. If the student leaves the chair or becomes inattentive, remove the objects from him. D. Gradually increase the length of time the student must sit appropriately in order to receive objects.	1. SOCIAL PRAISE A. Provide verbal praise when each additional object is given to the student. 2. CONSUMABLE CONSEQUENCES A. Provide consumable consequences at the end of 2 minutes appropriate sitting behavior.	1. PRETEST A. Record the length of time the student sits appropriately while manipulating objects for 3 consecutive sessions. B. Do not provide social praise or consumable consequences. 2. TRAINING A. Record the length of time the student sits appropriately for 3 consecutive sessions. B. Provide social praise and consumable consequences as indicated.

BEHAVIORAL OBJECTIVE	TEACHING PROCEDURE	CONSEQUENCES	EVALUATION PROCEDURE
17. TO DECREASE TARDINESS IN EITHER THE WORK OR SCHOOL SITUATION	1. TRAINER RESPONSIBILITIES A. Keeps daily and weekly records, graphs, and charts. B. Systematically applies consequences contingent on student's performance. 1) Student is awarded 20 tokens for being on time. 2) Student is fined two tokens for each minute he is late. 3) If student is no more than five minutes late, social praise is paired with tokens. Social praise is gradually increased contingent on earlier arrival. 4) Student is awarded a bonus (40 tokens) for being on time for five consecutive days. 5) Tokens are exchanged at the end of the week for other consequences.	1. TOKENS (see teaching procedure) 2. SOCIAL PRAISE (see teaching procedure) 3. OTHER CONSEQUENCES a. Tokens are exchanged at the end of each week for other consequences appropriate for the student. (e.g., free time, coffee break, high interest activity.)	1. PRETEST A. Record daily the time student appears for work/school, and the average number of minutes the student is tardy over a period of five days. B. Do not provide tokens or social praise during this five-day period. 2. TRAINING PROCEDURE A. Record daily the time the student appears for work or school. B. Provide tokens and social praise for appropriate behavior. C. Continue program until the student is on time for 10 consecutive days or a period of time selected by the teacher.

BEHAVIORAL OBJECTIVE	TEACHING PROCEDURE	CONSEQUENCES	EVALUATION PROCEDURE
18. TO IMPROVE FINE MOTOR COORDINATION PREPARATORY TO WRITING LETTERS, WORDS, AND SENTENCES.	1. SETTING A. Area devoid of disruptive stimuli. B. Student across small table from teacher. 2. MATERIALS A. A broad tip magic marker. B. 5" x 8" cards or paper cut (or folded to that size). 3. TEACHING PREPARATIONS A. Prepare several cards with a square, a triangle, a rectangle, and a circle on them. Make each figure approximately the same height and width. B. Prepare large block letter words on card. The letters should be 2 inches high. (If a student is familiar with any 2 or 3-letter words, they should be used first). 4. TEACHING PROCEDURE A. Use a broad tip magic marker. Hand the	1. CONSUMABLE CONSEQUENCES A. Provide consumable consequences after each correct response at the beginning of the programs. B. After the child's per cent of correct responses exceeds 40 per cent, provide consumable consequences following completion of all of the work on the card. 2. SOCIAL PRAISE A. Give social praise and encouragement (e.g., good, keep it up) as the child is making the correct response. B. Provide social praise after the child has completed the correct response. Pair with the consumable consequence.	1. PRETEST A. Present student with card containing objects. Instruct him to color in the objects. B. Repeat the procedure 4 times. C. Determine the number of errors made. An error is recorded whenever the student goes outside the border of the object. A maximum of 4 errors can be made on each card. D. Do not provide social praise or consumable consequences during this procedure. 2. TRAINING A. Continue to record the number of errors made during training. B. When the number of errors on both the object cards and the word cards are less than 10 per cent, terminate the program.

BEHAVIORAL OBJECTIVE	TEACHING PROCEDURE	CONSEQUENCES	EVALUATION PROCEDURE
18. Continued	marker and a card to the child. Cue child verbally by saying, "Color in the objects." Start with just objects and after a few sessions introduce the block letters. Teacher may have to model coloring in the object or letter for the first few sessions. Provide student with physical cue in holding the magic marker the proper way. Fade cue each session.		

BEHAVIORAL OBJECTIVE	TEACHING PROCEDURE	CONSEQUENCES	EVALUATION PROCEDURE
19. TO IMPROVE ORAL READING RATE AND COMPREHENSION.	1. MATERIALS A. Drill flash cards made from words missed in previous sessions B. Book (level depends on student's reading ability) 2. PROCEDURE A. Teacher proceeds with student through 3 separate activities: 1) DRILL FLASHCARDS Present word on card, then say word. (Define if necessary). Have child repeat word, then bury card in stack and continue. Provide social consequences for correct pronunciation. Do not say word again when it comes up unless student mispronounces it. Words not learned in this session should be reviewed again the next day. 2) READING ALOUD Have student read one page aloud. Record in notebook all errors which student does not correct himself. If a word	1. SOCIAL CONSEQUENCES A. Provide social praise and encouragement (i.e., good/that's right for correct responses). 2. CONSUMABLE CONSEQUENCES A. At the end of each activity, award consumable consequences (e.g., candy, cookies, juice). Consumable consequence is preceded immmediately by social consequence. 3. OTHER CONSEQUENCES A. When student has worked consistently throughout the period, he may have the last 5 minutes of the period to engage in a preferred activity.	1. See teaching procedures for ongoing evaluation. 2. At the end of each book, or major book division, review all appropriate flash card words.

BEHAVIORAL OBJECTIVE	TEACHING PROCEDURE	CONSEQUENCES	EVALUATION PROCEDURE
19. Continued	is omitted or mispronounced, record the error and tell the student the correct word 3) QUESTIONS Ask student 2 or 3 questions about material read on the page. Record and graph the per cent correct answers on first try. Do not go to next question before correct answer is given. After all questions are answered, go on to the next page.		

BEHAVIORAL OBJECTIVE	TEACHING PROCEDURE	CONSEQUENCES	EVALUATION PROCEDURE
20 TO INCREASE PRODUCTIVITY AND ACCURACY IN ACADEMIC BEHAVIORS, e.g., ARITHMETIC.	1. Begin with presentation of regular academic session for each task that child completes correctly, give token reward, and say, "Good," as he completes task. A. If the student does not complete task, provide a verbal cue, and then take him through the task until the process is clear to him. B. If child understands task but will not complete it--ignore him and provide no consequences. 2. Proceed with presentation of regular academic material. A. During the third session, begin fading social praise and tokens.	1. TOKENS (POKER CHIPS, ETC.) A. Token which can be traded for other consequences, e.g., toys, candy, free time, etc. B. Pair the delivery of tokens with social praise. 2. SOCIAL PRAISE A. Provide social praise when student correctly responds to verbal cues	1. PRETEST A. Record students' academic behavior for three consecutive sessions, e.g., in arithmetic record the: 1. number of problems completed 2. per cent of problems accurately completed, etc. B. Do not provide tokens or social praise during these 3 sessions. 2. TRAINING A. Continue to record the above data for session after implementation of program. B. Compare this data to that obtained in the pretest.

The following four programs were developed at the Rocky Mountain Special Education Instructional Materials Center of the University of Northern Colorado at Greeley, Colorado.

Each of the four programs is presented in step-by-step fashion. Supporting research resulting from the application of each program is discussed at the beginning of each program.

The programs require approximately ten to fifteen minutes per day to use. They can be used with words selected from either programmed texts or with words selected from "critical" word lists. Word lists from both sources are included in the references.

The use of these programs is not restricted to any one diagnostic group of children, e.g., trainable retarded, etc., nor are they restricted to use by trained professional personnel. As indicated in the supporting research cited, these programs have been used successfully with pre-school normal children and retarded children. Further, they have been successfully used by teachers, teacher's aides, parents and trainable retarded children as well.

21. TEACHING A SIGHT VOCABULARY ON AN INDIVIDUAL BASIS

The following program outlines the procedures for teaching a sight vocabulary to children on an individual basis. The program has been used successfully with retarded as well as preschool normal children.

The procedural aspects of this program illustrate the use of words selected from a programmed text, although the program can also be used with equally satisfactory results to teach the so-called "critical" or "survival" (1) words, e.g., MEN, WOMEN, STOP, GO, POISON, etc.

When using this program, it is necessary to arrange the words to be taught into word lists. In the case of the programmed words, the word lists were composed of three words each. The number of words which should be included in each word list is arbitrary, although it is recommended that no more than ten words be included in each word list.

Research regarding the use of this program includes studies by Brown, et. al. (2) and Knight, et. al. (3).

In the first study, a girl whose measured I.Q. was 47 (WISC Full Scale) was taught the first 51 words in the Sullivan Reading Series (4) in approximately ten hours of training. The training in this study was conducted by a teacher's aide. Each training session lasted from 20 to 25 minutes.

Upon completion of the training, she read the first 30 pages of the Sullivan Series (approximately 600 words) to the class, with a total of 12 errors. Upon reading these same pages aloud for a second time, she made a total of two errors. Thus, she was able, upon completion of training, to read a total of 1,200 words with only 14 errors.

In the latter study, data were reported for three children.

Child 1. This child was four years of age. In approximately 28 hours of training, he learned a total of 326 words.

Child 2. This child was five years of age. In approximately 17 hours of training, he learned a total of 291 words.

Child 3. This child was also five years of age. In approximately eight hours of training, he learned a total of 92 words.

The first two children in this study were normal preschool children; the third child was reported to be a victim of Down's Syndrome. All of the training sessions in this study were conducted in the children's homes by their parents. Daily training sessions averaged ten minutes each.

Consequences provided in these studies included praise, tokens, and consumable items, e.g., candy, sugar-coated cereal, etc. depending upon the student's behavior. Similarly, the user of this program should determine, by experimentation, the approximate type of consequence for each student that he works with.

PROCEDURE

I. SITUATION

1. Physical.

The tutoring room should be equipped with a table and two chairs. Seat students in chair directly opposite the trainer with table to left/right of trainer. The table serves as a convenience, holding any material necessary.

2. Materials.

A. Recording materials.

(1) Classroom Record Graph (See APPENDIX A).

(2) Teacher Recording Graph (See APPENDIX B).

B. Fifty-seven words from the Sullivan Programmed Reading, Book One, printed in capital letters on 5" x 7" index cards. The words are arranged into word lists of three words each.

C. Card holder on which to place the word card.

D. Consequences. Consumable consequences, e.g., sugar-coated cereal, etc., as appropriate.

II. PRETEST

1. Pretest student before training by presenting each of the fifty-seven words.

A. Hold up each word and say, "What does this word say?". Provide no feedback to the student regarding the correctness of his response.

B. Retain the words not properly labeled by the students for training.

III. TRAINING: STEP ONE

1. Start with the first word card in word list one. Do not record student's responses during this step.

   A. Place the word card on the card holder.

   B. Point to the card and say to the student:

      "Do you see this word?"*

      "This word says _____."

      "What does this word say?"

      (1) If the student correctly repeats the label of the word, smile and provide him with verbal praise. DO NOT PROVIDE CONSUMABLE CONSEQUENCE IF ONE IS BEING USED.

      (2) If the student fails to repeat the label of the word and/or engages in an undesired activity, ignore him briefly by turning your head away from him for a few seconds.

   C. Proceed to the next word in the word list and begin again with A. above.

2. Repeat this procedure until the student has had an opportunity to repeat the label of each word once, then proceed to TRAINING: STEP TWO.

IV. TRAINING: STEP TWO

1. When the student has had the opportunity to repeat the label of each word in the word list:

   A. Present the first word again and say, "What does this word say?".

      1. If the student correctly labels the word, place an X on

---

*This cue can be dropped when the student is attending adequately to the word card when it is placed in the card holder.

the Teacher Recording Sheet and provide verbal praise and consumable consequences, as appropriate.

2. If the student does not correctly label the word, place an O on the Teacher Recording Sheet and give him a cue, e.g.,

   Say to the student, "This word says _____."

   Say to the student, "What does this word say?".

   If the student repeats the label of the word, provide verbal praise. DO NOT PROVIDE CONSUMABLE CONSEQUENCE IF ONE IS BEING USED.

B. Proceed to the next word in the list and begin again with A. above.

2. Repeat this procedure until the student has had an opportunity to label each word in the word list three times. Terminate the session at this point.

3. When the student correctly labels a word on three consecutive presentations, WITHOUT THE CUE, help him write the word learned on the Classroom Record Graph. This should be done in the presence of his classmates, when possible.

V. TEACHING NEW WORDS

Begin with a new word list when the student accurately labels each word in the original list on three consecutive presentations.

22. TEACHING A SIGHT VOCABULARY IN A GROUP SITUATION

The following program outlines procedures for teaching a sight vocabulary to the developmentally young in a group situation. Research supporting the use of this program can be found in the study by Brown, et. al., (2).

Their study involved the comparison of the efficiency of the group method as described in this section to the individual method as described in PROGRAM 21. The comparison was made by teaching the same group of students a list of five "critical" words using both the individual and group methods. Training was conducted by the teacher's aide.

Subjects for their study consisted of six "trainable level retarded" students, ranging in age from twelve to fourteen and in I.Q. from 36 to 49. The results of their study indicated that teaching in a group situation was superior to teaching on an individual basis, in that the number of correct responses in the group situation was higher than those obtained in the individual situation.

The amount of time necessary to teach in the group situation, an average of twelve minutes, was about the same as that required in the individual situation, an average of eleven minutes; although, as the authors point out, the amount of time in the group situation was increased by the fact that the students often cheered each other when a word was labeled correctly.

PROCEDURE

I. SITUATION

1. Physical.

The training should take place in the classroom with the students and the teacher sitting around a circular table (students should sit in a semi-circle facing the teacher).

2. Materials.

A. Recording materials.

(1) Classroom Record Graph (See APPENDIX A).

(2) Teacher Recording Sheet (See APPENDIX B). One for each child to be taught.

B. Five training words printed on 5" x 7" cards (i.e., GO, POISON, STOP, DANGER, MEN). All words should be printed in capital letters.

C. Card holder on which to place cards so all students can see them.

D. Consequences. Consumable Consequences, e.g., M & Ms, chocolate covered almonds, salted peanuts, etc., as appropriate. Put these on a tray in the center of the circular table.

II. PRETEST

1. Pretest data should be collected for each student individually.

A. Have one student come to the back of the room and sit down opposite the person who will be doing the actual training.

B. Present one card at a time and say, "What does this word say?". Provide no feedback to the student regarding the correctness of his response.

C. When all of the training words have been presented, send the student back to his desk and begin pretesting another student.

D. Retain the words not properly labeled by any of the students for training.

III. TRAINING: STEP ONE

1. Begin with the students to be trained seated around the circular table. Start with the first student on your left. Do not record the students' responses during this step.

A. Present the first word by placing it on the card holder in full view of all of the students.

B. Point to the word card and say to the first student:

"Do you see this word?"*

"This word says _____."

"What does this word say?"

(1) If the student correctly repeats the label of the word, smile, and provide him with verbal praise. DO NOT PROVIDE CONSUMABLE CONSEQUENCE IF ONE IS BEING USED.

(2) If the student fails to repeat the label of the word and/or engages in any undesired activity, ignore him briefly by turning your head away from him for a few seconds.

C. Proceed to the next word in the word list and begin again with A. above.

---

*This cue can be dropped when the students are attending adequately to the word card when it is placed in the card holder.

2. When the first student has had an opportunity to repeat the label of each word in the word list, begin with the second student and repeat the procedure.

3. Repeat this procedure until each student has had an opportunity to repeat the label of <u>each</u> word in the word list once. Terminate the session at this point.

IV. <u>TRAINING: STEP TWO</u>

1. Begin with the students to be trained seated around the circular table. Start with the first student on your left.

   A. Present the first word by placing it on the card holder in full view of all the students.

   B. Point to the word card and say to the first student:

      "What does this word say?"

      (1) If the student correctly labels the word, place an X on the Teacher Recording Sheet, and provide verbal praise and consumable consequences, as appropriate. Encourage the other students to applaud him.

      (2) If the student does not correctly label the word, place an O on the Teacher Recording Sheet, and provide the student with a cue:

         Say to him, "This word says _____."

         Say to him, "What does this word say?"

      (3) If the student repeats the label of the word, display approval. <u>DO NOT PROVIDE CONSUMABLE CONSEQUENCE IF ONE IS BEING USED.</u>

      (4) If the student fails to repeat the label of the word and/or engages in any undesired activity, ignore him briefly by turning your head away from him for a few seconds.

C. Proceed to the next word in the word list and begin again with B. above.

2. When the first student has had an opportunity to label each word in the word list, begin with the second student and repeat the procedure.

3. Repeat this procedure until each student has had an opportunity to label each word in the word list once. Terminate the session at this point.

4. When a student correctly labels a word on three consecutive presentations, WITHOUT THE CUE, help him write the word learned on the Classroom Record Graph. This should be done in the presence of his classmates, when possible.

V. SELECTING NEW WORDS TO TEACH

Select a new word list when the students make an average of 90% correct responses to the words in the original word list, e.g., if you are teaching six students five words, a total of thirty responses, WITHOUT CUES, can be made in each training session. When 27 of 30 responses are made correctly, select a new set of words to teach.

VI. A PROGRAMMING HINT

Place those students who are having the most difficulty on your right. This will provide them with an opportunity to see each word several times, as they are presented to their classmates, before it is their turn to respond.

23. TEACHING STUDENTS TO TEACH EACH OTHER

The following program outlines the procedures for teaching a student to teach a sight vocabulary to another student on an individual basis, and then to teach more than one student in a group situation.

Research regarding the use of this procedure is provided by Brown et. al. (5). In their study, two students, with measured I.Q.s of 44 and 47, were taught two lists of ten "critical" words using the procedure outlined in PROGRAM 21. One student was taught only the words in the first list, while the other student was taught only the words in the second list. Each list consisted of words not included in the other list.

Upon completion of this part of the training procedure, these students were trained to teach each other. The first student taught the second student the ten words included in the list that the first student had learned, and vice-versa. The students succeeded in teaching each other ten words in a total of fifteen 15 minute sessions.

Upon completion of this part of the training procedure, both students taught a list of five words to their classmates in a group situation, using the procedure outlined in PROGRAM 22. Their class consisted of four boys and one girl, with I.Q.s ranging from 33 to 44. The students succeeded in teaching the class the five selected words in a total of ten 15 minute sessions.

PROCEDURE

First select one student from your class and teach the student ten words, e.g., MAN, DOG, BOY, GIRL, FIRE, STOP, GO, WAIT, EXIT, DON'T, using the procedure outlined in PROGRAM 21.

When the student has learned the ten words selected, select a second student. The second student (referred to hereafter as the STUDENT) will be taught the same ten words by the first student (referred to hereafter as the STUDENT TEACHER).

I. SITUATION

1. Physical.

A table with three child-size chairs. Seat children on opposite sides of the table. The trainer should sit on a side of the table between both children.

2. Materials.

A. Recording materials.

(1) Classroom Record Graph. (See APPENDIX A)

(2) Teacher Recording Graph. (See APPENDIX B)

B. Words to be taught, printed in capital letters, on 5" x 7" index cards.

C. Card holder on which to place word cards.

D. Consequences. Consumable consequences, e.g., sugar-coated cereal, as appropriate.

II. PRETEST

1. Pretest the student before training by presenting each of the words to be taught.

A. Hold up each word and say, "What does this word say?"

B. If the student properly labels the word, remove it from the training list. Provide no feedback to the student regarding the correctness of his response.

c. Retain the words the student does not label properly for training.

III. TEACHING THE STUDENT TEACHER TO TEACH

The purpose of this section of the program is to teach the student teacher the procedures for teaching a sight vocabulary to another student. For the sake of illustration, the procedural outline below will make use of the ten words listed above.

The left hand column below describes the appropriate teacher behaviors as each word is introduced, while the right hand column describes the appropriate behaviors for the student teacher.

During this part of the training procedure, it is not necessary to record the student's responses. If you had previously decided to use consumable consequences for training, do not use them during this phase of training.

If the student does not repeat the name of the word in Step 4 below, ignore him briefly and repeat the sequence, beginning with number 2.

A. First Word: MAN

Teacher Behavior	Student Teacher Behavior
1. Places word card in holder.	1. Observes.
2. Say to student "What does this word say?"	2. Observes.
3. Say to student "This word says MAN."	3. Observes.
4. Say to student "What does this word say?"	4. Observes.
5. Provides social consequence.	5. Observes.

After the first word has been introduced to the student, instruct the student teacher to repeat your statement to the student. Make sure that the student teacher directs her imitation of your statement directly to the student.

Make sure that the student teacher's imitation of your statement to the student does not interfere with the student's response, e.g., the correct sequence would be as follows:

1. Teacher says "What does this word say?"
2. Student teacher says "What does this word say?"
3. Student is given opportunity to respond.

Praise the student teacher for correctly imitating your statements.

B. Second Word: DOG

Teacher Behavior	Student Teacher Behavior
1. Places word card in holder.	1. Observes
2. Say to student "What does this word say?"	2. Repeats teacher statement
3. Say to student "This word says DOG?"	3. Repeats teacher statement
4. Say to student "What does this word say?"	4. Repeats teacher statement
5. Provides social consequence.	5. Repeats teacher statement.

After the second word has been introduced to the student, begin to cue the student teacher to perform the teaching behaviors as indicated for words three through five.

Make your cues as brief as possible, e.g., pointing at the card holder may be sufficient to cause the student teacher to place the word card in it. Similarily, saying the first word or two of the

statement "What does this word say?" may be sufficient to cause the student teacher to say the complete statement.

Praise the student teacher for correctly performing the appropriate teaching behaviors.

Watch closely for any indications on the student teacher's part that the cues can be introduced more rapidly than indicated below. If this occurs, allow the student teacher to take over the training as rapidly as possible.

C. Third Word: BOY

Teacher Behavior	Student Teacher Behavior
1. Cues.	1. Places word card in holder.
2. Say to student "What does this word say?"	2. Repeats teacher statement.
3. Say to student "This word says BOY?"	3. Repeats teacher statement.
4. Say to student "What does this word say?"	4. Repeats teacher statement.
5. Provides social consequence.	5. Repeats teacher statement.

D. Fourth Word: GIRL

Teacher Behavior	Student Teacher Behavior
1. Cues.	1. Places word card in holder.
2. Cues.	2. Say to student "What does this word say?"
3. Cues.	3. Say to student "This word says GIRL."
4. Say to student "What does this word say?"	4. Repeats teacher statement.
5. Provides social consequence.	5. Repeats teacher statement.

E. Fifth Word: FIRE

Teacher Behavior	Student Teacher Behavior
1. Cues.	1. Places word card in holder.
2. Cues.	2. Say to student "What does this word say?"
3. Cues.	3. Say to student "This word says FIRE."
4. Cues.	4. Say to student "What does this word say?"
5. Cues.	5. Provides social consequences.

After the fifth word has been introduced, begin to fade out the cues as indicated below. The dash in the teacher column means that the teacher is to sit quietly and let the student teacher take over.

If the student teacher fails to exhibit the appropriate teaching behavior at any point in the procedure, return to the use of the cues.

Praise the student teacher for correctly exhibiting the appropriate teaching behavior.

Watch closely for any indications on the student teacher's part that she is capable of correctly performing the desired teaching behaviors before the entire list of words has been taught as outlined below. If this occures, allow the student teacher to take over the training as rapidly as possible.

F. Sixth Word: STOP

Teacher Behavior	Student Teacher Behavior
1. ---	1. Places word card in holder.
2. Cues.	2. Say to student "What does this word say?"
3. Cues.	3. Say to student "This word says STOP."

4. Cues.	4. Say to student "What does this word say?"
5. Cues.	5. Provides social consequence.

G. Seventh Word: GO

Teacher Behavior	Student Teacher Behavior
1. ---	1. Places word card in holder.
2. ---	2. Say to student "What does this word say?"
3. Cues.	3. Say to student "This word says GO."
4. Cues.	4. Say to student "What does this word say?"
5. Cues.	5. Provides social consequence.

H. Eighth Word: WAIT

Teacher Behavior	Student Teacher Behavior
1. ---	1. Places word card in holder.
2. ---	2. Say to student "What does this word say?"
3. ---	3. Say to student "This word says WAIT."
4. Cues.	4. Say to student "What does this word say?"
5. Cues.	5. Provides social consequence.

I. Ninth Word: EXIT

Teacher Behavior	Student Teacher Behavior
1. ---	1. Places word card in holder.
2. ---	2. Say to student "What does this word say?"

3. ---	3. Say to student "This word says EXIT."
4. ---	4. Say to student "What does this word say?"
5. Cues	5. Provides social consequence.

J. Tenth Word: DON'T

Teacher Behavior	Student Teacher Behavior
1. ---	1. Places word card in holder.
2. ---	2. Say to student "What does this word say?"
3. ---	3. Say to student "This word says DON'T."
4. ---	4. Say to student "What does this word say?"
5. ---	5. Provides social consequence.

IV. THE STUDENT TEACHER BEGINS TO TEACH

Two additional skills must be mastered by the student teacher before he can actually take over the process of independently teaching the student on either an individual basis or group basis.

The first skill involves teaching the student teacher to accurately record the student response, using the Teacher Recording Graph.

Component parts of this skill are:

A. Identifying the word being presented on the vertical axis of the Teacher Recording Graph. This should present little problem, since the student teacher knows all of the words presented on the vertical axis.

B. Using the Teacher Recording Graph to record the student's response on only the first presentation of the word, not for recording the student's response following the cue.

C. Making two distinct marks on the graph, one indicating that the student's response is correct, the other that the student's response was incorrect, e.g., an X for a correct response and an O for an incorrect response.

D. Making the marks on the correct place on the graph, i.e., so that the mark corresponds with the correct presentation number.

The second skill involves teaching the student teacher to correctly provide the consumable consequence if one is being used.

Both of these skills can be taught by monitoring the student teacher's behavior during the first part of the actual teaching process.

It is recommended that the teacher sit with the student teacher and the student during the first three complete presentations of the word list. During these presentations, the correct application of the skills above should be modeled for the student teacher, as necessary.

Provide verbal praise to the student teacher when she exhibits the desired teaching behaviors.

Provide assistance, as required, to the student teacher in writing words learned by the student on the Classroom Record Graph.

Gradually remove yourself from the teaching situation as the student teacher masters the teaching process.

The procedures for teaching in both the individual and group situations, as outlined in PROGRAMS 21 and 22 are listed below for the sake of convenient reference.

V. THE INDIVIDUAL SITUATION

1. When the student has had the opportunity to repeat the label of each word in the word list:

   A. Present the first word and say, "What does this word say?".

      (1) If the student correctly labels the word, place an X on the Teacher Recording Sheet and provide verbal praise and consumable consequences, as appropriate.

      (2) If the student does not correctly label the word, place an O on the Teacher Recording Sheet and give him a cue, e.g.,

      Say to the student, "This word says _____."

      Say to the student, "What does this word say?".

      If the student repeats the label of the word, provide verbal praise. DO NOT PROVIDE CONSUMABLE CONSEQUENCE IF ONE IS BEING USED.

B. Proceed to the next word in the list and begin again with A. above.

2. Repeat this procedure until the student has had an opportunity to label each word in the word list three times. Terminate the session at this point.

VI. THE GROUP SITUATION

1. Begin with the students to be trained seated around the circular table. Start with the first student on the left.

A. Present the first word by placing it on the card holder in full view of all the students.

B. Point to the word card and say to the first student:

"What does this word say?"

(1) If the student correctly labels the word, place an X on the Teacher Recording Sheet, and provide verbal praise and consumable consequences, as appropriate. Encourage the other students to applaud him.

(2) If the student does not correctly label the word, place an O on the Teacher Recording Sheet and provide the student with a cue:

Say to him "This word says _____ ."

Say to him "What does this word say?".

If the student repeats the label of the word, display approval. DO NOT PROVIDE CONSUMABLE CONSEQUENCE IF ONE IS BEING USED.

If the student fails to repeat the label of the word and/or engages in any undesired activity, ignore him briefly by turning your head away from him for a few seconds.

C. Proceed to the next word in the word list and begin again with B. above.

2. When the first student has had an opportunity to label each word in the word list, begin with the second student and repeat the procedure.

3. Repeat this procedure until each student has had an opportunity to label each word in the word list once. Terminate the session at this point.

24. TEACHING PARENTS TO TEACH THEIR CHILDREN

The following program outlines the procedures for teaching parents to teach their children a sight vocabulary using the procedure outlined in PROGRAM 21.

As indicated in the research reported by Knight, et. al. (3), parents can use this training procedure successfully with their own children regardless of the diagnostic label the child has.

The use of this program depends upon the teacher being able to conduct a minimum of one training session with the parents. Ideally, both parents should attend the training session, although the training can be done with just one of the parents if necessary.

The enclosed program focuses on training sessions conducted with one set of parents at a time, however, the program can be used with several parents at the same time.

I. EXPLAINING THE TRAINING PROCEDURE

Explain to the parents the purpose of the sight vocabulary training program as outlined in PROGRAM 21.

A. Discuss the supporting research data reported there as appropriate.

B. Caution the parents against comparing their child's progress with the progress of the children described in PROGRAM 21.

C. Emphasize the fact that their child is a unique individual, and that his progress through the sight vocabulary program will vary accordingly.

II. DEMONSTRATING THE TRAINING PROCEDURE

Demonstrate, with their child if possible, the training procedure outlined below. If it is not possible to demonstrate with their child, have one of the parents play the role of the child.

Carry out the demonstration for one complete presentation of the word list. During the demonstration, emphasize:

A. The correct method for presenting the word card, e.g., show the card to the child and say "What does this word say?"

B. The correct method for providing a cue when the child does not label the word, e.g.,

say to child "This word says_____."

say to child "What does this word say?"

C. The correct consequence to provide when the child labels the word after the cue is given, e.g., verbal praise only, no consumable consequence.

D. The correct method of providing verbal praise.

E. The correct method for providing the consequence,

e.g., the consumable consequence should be provided at the same time the verbal praise is delivered.

F. The use of the "ignoring" procedure, e.g., turning your head away from the child for a few seconds if he misbehaves.

G. The correct use of the Classroom Record Graph and the Teacher Recording Graph.

When you have finished the first presentation of the word list, have the parent make the second presentation.

A. Watch closely to see if the parent has correctly mastered the skills in A through G above.

B. Correct any mistakes observed and repeat the word list presentation again, if necessary.

III. DISCUSSING HOME TRAINING PROCEDURES

When the parent has satisfactorily demonstrated the skills necessary to use the training procedure, discuss the following points:

A. Home training sessions should be conducted at least once each day.

B. Sessions should be conducted in a room relatively free from distractions.

C. The average length of each session should not exceed fifteen minutes.

D. Each session consists of a minimum of three complete presentations of the word list.

E. A word is considered learned when the child correctly labels it on three consecutive presentations, without the cues.

F. Encourage the parents to post the Classroom Record Graph in a prominent place in the home. Instruct them to provide praise to

the child when he has correctly learned a word and records it on his graph.

G. Caution the parents against the use of any type of punishment, e.g., scolding or spanking, should the child misbehave during the home training sessions. Urge them to use instead the "ignoring" procedure.

Provide the parents with a set of the words that you are teaching their child. This set should be identical to the one you are using in the classroom, e.g., all words printed in capital letters on 5" x 7" index cards.

IV. WORKING WITH THE PARENTS

Establish a system whereby you and the parents exchange information on a regular basis regarding the child's progress in the sight vocabulary program. For example, you might send home a copy of their child's Classroom Record Graph each Friday and ask them to send you a copy of the Classroom Record Graph they are using in the home to you on Monday.

If you notice serious discrepancies between the student's progress in the classroom and home setting, consult with the parents and review the steps above to determine where the training procedures differ.

REFERENCES

(1) Dolch, Edward W., 220 Dolch Basic Sight Words. Garrard Publishing Company. Champaign, Illinois, 1942.

LEVEL 1. PRE-PRIMER

a	funny	look	see
and	go	make	the
away	help	me	three
big	here	my	to
blue	I	not	two
can	in	one	up
come	is	play	we
down	it	red	where
find	jump	run	yellow
for	little	said	you

LEVEL 2. PRIMER

all	four	please	too
am	get	pretty	under
are	good	ran	want
at	have	ride	was
ate	he	saw	well
be	into	she	went
black	like	so	what
brown	must	soon	white
but	new	say	who
came	no	what	will
did	on	there	with
do	our	they	yes
eat	out	this	

LEVEL 3. FIRST

after	from	know	round
again	give	let	some
an	going	live	stop
any	had	may	take
as	has	of	thank
ask	her	old	them
by	his	once	then
could	him	open	think
every	how	over	walk
fly	just	put	were
			when

LEVEL 4. SECOND

always	fast	pull	us
around	five	read	use
because	found	right	very
been	gave	sing	wash
before	first	sit	which
best	goes	sleep	why

LEVEL 4. SECOND (Continued)

both	green	tell	wise
buy	its	there	work
call	made	these	would
cold	many	those	write
does	off	upon	your
don't	on		

LEVEL 5. THIRD

about	fall	kind	serve
better	far	laugh	shall
bring	full	light	show
carry	got	long	six
clean	grow	much	small
cut	head	middle	start
down	hot	never	ten
draw	hurt	only	today
drink	if	own	together
eight	keep	pick	try
			warm

(2) Brown, L., Klemme, H., Hermanson, J., Haubrich, P., and Ora, J. Using Behavior Modification Principles To Teach Sight Vocabulary. TEACHING EXCEPTIONAL CHILDREN, 1970, 2(3), 120.

(3) Knight, M. G., Hasazi, S. E. and McNeil, M. E. A Home Based Program For The Development of Reading Skills For Preschoolers. In Ramp, E. and Hoskins, B. (Eds.) A New Direction For Education: Behavior Analysis, Vol. 1, pp. 223-233. University of Kansas, Department of Human Development, Lawrence, Kansas, 1971.

(4) Sullivan and Associates. Programmed Reading. New York: McGraw-Hill. 1963.

WORD LIST IN ORDER PRESENTED

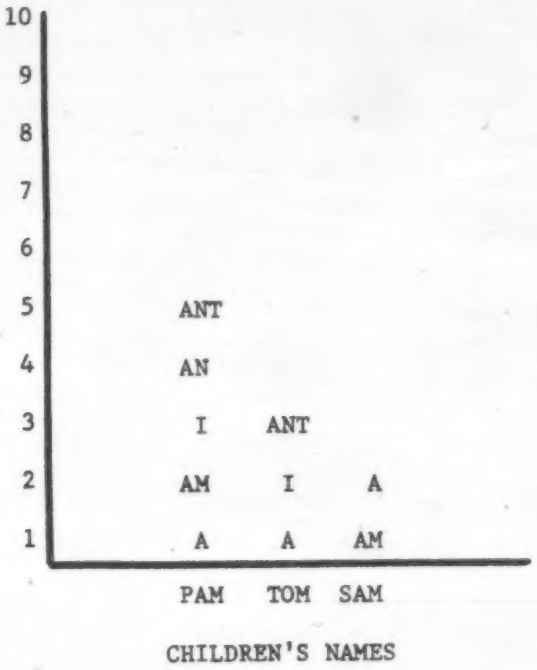
1.	a	15.	fat	29.	pat	43.	that
2.	am	16.	fan	30.	pats	44.	fit
3.	I	17.	can	31.	on	45.	ham
4.	an	18.	tin	32.	sing	46.	the
5.	ant	19.	cat	33.	singing	47.	hit
6.	yes	20.	sit	34.	sitting	48.	him
7.	no	21.	cans	35.	nap	49.	mint
8.	man	22.	cats	36.	pant	50.	ship
9.	mat	23.	this	37.	sat	51.	fish
10.	tan	24.	is	38.	Ann	52.	fast
11.	pan	25.	tab	39.	hat	53.	miss
12.	pin	26.	nip	40.	has	54.	Pat
13.	in	27.	map	41.	his	55.	dish
14.	thin	28.	Sam	42.	it	56.	and
						57.	sad

(5) Brown, L., Fenrick, N., and Klemme, H. Trainable Pupils Learn To Teach Each Other. TEACHING EXCEPTIONAL CHILDREN, 1971, 4(1), 18.

APPENDIX A

CLASSROOM RECORD GRAPH

The following type of graph is recommended for use for the purpose of classroom display of the number of words learned.



(1) Place the graph in the classroom where it can easily be seen by all children.

(2) The graph above indicates that "Pam" has learned the words A through ANT inclusively, etc.

APPENDIX B

TEACHER RECORDING SHEET

The following type of recording sheet is recommended for the purpose of recording individual student performance. This recording sheet is for the purpose of keeping track of the student's progress and is not placed in front of the room.

CHILD'S NAME: JOHN

SESSION

		1			2			3		
	PRESENTATIONS	1	2	3	1	2	3	1	2	3
	MEN	o	x	o	x	x	o			
	NO	o	o	x	o	x	x			
	YES	o	o	o	o	x	x			
WORDS	ANT	o	x	x	o	x	x			
TO BE	AN	o	o	x	o	o	x			
TAUGHT	I	o	x	o	x	x	o			
	AM	o	o	x	o	x	x			
	A	o	o	o	x	x	x			

(1) Record an X on the chart when the child labels the word correctly without the cue.

(2) Record a circle when the child does not label the word correctly.

(3) The graph above indicates that "John" missed the word A the first three times it was presented and then labeled it correctly the next three times it was presented, etc.

(4) Accordingly, John would be allowed to record the word A on the Classroom Record Sheet.